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Information on social behavior independence, and intelligence was gathered on 74 Head Start subjects (Anglo, Negro, and Mexican-American) aged 5 to 7 years, for the development of a scale to measure the level of independence in small children. The following hypotheses were tested: (1) Level of independence will differentiate ethnic groups. Ranking order will be Negro, Anglo, Mexican. (2) Level of independence will correlate positively with the following measures of social behavior: (a) teacher's estimated rank of child's social competence; (b) teacher's estimated rank of child's popularity; (c) interpersonal and communicative score; (d) status among peers; and (e) school adjustment. (3) Status among peers will be lower for high dependent girls than for high dependent boys. (4) Intelligence will correlate positively with level of independence. (5) Achievement will correlate positively with level of independence. (6) Age will correlate positively with level of independence. The results supported only the second and sixth hypotheses with low correlations. Results were not conclusive for the fifth hypothesis. Extremes in dependence and independence for each sex and age level must be established before studies relating level of independence with other variables can be fruitful. References and tabulated data are included. (JS)

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PART OF THE FINAL REPORT

ON

HEAD START EVALUATION AND RESEARCH: 1967-68

TO

THE OFFICE OF ECONOMIC OPPORTUNITY
(Contract No. OEO-4115)

CHILD DEVELOPMENT EVALUATION AND RESEARCH CENTER

John Pierce-Jones, Ph.D., Director

The University of Texas at Austin

August, 1968

# DEPENDENCY AND SOCIAL PERFORMANCE

## The Development of a Scale to Measure Level of Independence in Small Children

José L. Soto-Padín

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I wish to thank Dr. John Pierce-Jones, Director, Child Development Evaluation and Research Center, The University of Texas at Austin, for his encouragement when I decided to start this work. The other members of his staff have always been extremely helpful. Among them specific mention should be made of Dr. Grover Cunningham, Jr., Associate Director, who made me aware of the wide opportunities for useful and interesting research through the Child Development Evaluation and Research Center, and Mr. Edward Cervenka, Project Director, whose instruments and advice were always available to me. Also, this Project could not have been carried out without the cooperation of a number of public school administrators and teachers, the children in the sample, and their parents. I wish to acknowledge Mr. Lipscomb Anderson, Coordinator of Special Projects, Austin Independent School District, Mrs. Mayna Bode, Principal, Mathews Elementary School, Mr. C. L. Moore, Principal, Campbell Elementary School, Mr. Gordon D. Moore, Principal, Palm Elementary School, the Head Start teachers--Mrs. Clara Field, Mrs. Irene Ates, and Mrs. June Firchow, from each school respectively, and their assistants. I will always appreciate the extreme patience of the secretaries, Mrs. Joyce Kubala and Mrs. Mary Calvo.

J. L. Soto-Padín

The University of Texas at Austin
August, 1968

# ABSTRACT

A sample of 74 Head Start subjects representing three ethnic groups (Anglo, Mexican-American, and Negro) were used to gather preliminary information for the development of a scale to measure the level of independence in small children. Information on social behavior in the school setting was also gathered, and some hypotheses were tested relating level of independence with social behavior. Low positive correlations were obtained between the level of independence and the basic measures of social behavior, principally among the youngest children and among girls. Analysis done with the preliminary inventory constructed to measure level of independence showed that the instrument was low in discriminating power especially among the subjects with higher level of independence--namely, the males. Detailed inventories of behavior by age groups and sex should be prepared as a preliminary step in the establishment of objective general criteria for the identification of extreme cases within the dependence-independence dimension. This the author considers basic before studies relating level of independence with other variables can be fruitful.

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# CHAPTER I

## A MOVEMENT TOWARD THE UNDERSTANDING AND BETTERMENT OF CHILDREN'S PSYCHOSOCIAL DEVELOPMENT

Understanding human behavior has been a concern of thinkers of all times. Systematic work based on objective selection, examination, and interpretation of behavioral data is, however, more recent. In fact, many areas in the field of psychology are still fighting their way into the scrutinizing world of scientific formality. Probability of access is directly related to the quantizing ability of each field, a trait in which psychology is not heavily loaded. The effects of this limiting characteristic of the psychological field have continually hampered advance, but students in the field have taken the challenge and tried to substitute ingenuity for the absence of natural facility. Many of the advances made in other areas (sociology, biology, medicine, engineering, etc.) have been adopted or adapted. In this sense, methods and findings of physiologists, neurologists, statisticians, and others have been among the most frequently added. Work on perception, studies of the brain, and analytical tools like correlational statistics are specific examples. Other techniques have been developed within the field of psychology itself. The widely used method of factor analysis, which with the advent of high speed computer systems is becoming the most popular approach to many time-consuming problems, is one outstanding case.

The amount and intensity of effort devoted to the different areas within the human behavior domain have been shifting through the years. In some cases a new approach comes out with extraordinary appeal magnetizing the forces toward a particular area. In other cases, specific societal needs provide a powerful incentive. Child development is becoming one of the main areas of attack as a product of the combination of these two very important sources of change in the relative strength of areas of scientific concern. As an extremely inclusive domain, child development is attracting many students. The development of intellectual abilities, emotions, the sociology of childhood, identification and the development of independence are some of these areas (not being mutually exclusive, however). Why this shift in modern psychology toward childhood?

The work and writings of Sigmund Freud might have been the most important single factor in explaining the shift in psychology to an intensive study of child life. Freud's psychiatric work brought him to conclude that the sources of personality conflicts in adulthood were deeply rooted in childhood life. Though some details in Freud's theories have been continually questioned, it has not been possible to rule out early life experiences as significant partial determiners of adult behavior. Thus scores of psychologists and sociologists among others, have turned their attention to the early years, in search for possible predicting variables of future behavior. The discovery of stable relationships between childhood experiences and subsequent behavior will be the basis for planning efficient ways to help minimize the type of experiences that will most likely result in undesirable behavioral outcomes in the future. Similarly, the discovery of stable relationships between a child's physical, social, and psychological traits and the child's behavior, can be the basis for the planning of systems to help control the development of as many traits (or combinations of them) which most likely accompany the undesirable response as is possible. The total remaking of a child is not feasible, but the plasticity of human nature (within some limits) is now an accepted fact. Modifiability of human behavior through control of physical, social, and psychological situations is evidently the most significant outcome of operant conditioning work.

The significance of working with the child will rarely be overestimated. As Bossard and Boll (1966) point out:

> If society is to control and direct its development, then the place to begin is with the oncoming generation. The remaking of the world can never hold much point or hope of reasonable success if it is conceived in terms of the immediate present. It is essentially a process of trading in social futures, if the terminology of the market is permitted. Controlled and directed social movement implies a forward-looking philosophy with its eyes and its values focused on the future. And the future is the child. The

> child is the hostage which each generation gives to destiny, as a token of its behavior and its hopes.[1]

Based on the concepts of (1) the early years of life participating significantly in the patterning of human personality, (2) the plasticity of human nature, and (3) the possibility of greater output of societal improvement through action in the early stages of life (where variations should mean wider future discrepancies) modern society and modern psychology are moving toward the widening of those routes of approach that seem to offer the best possibilities for advancement. Increasing efforts to objectively study the outcome of varying early life stimuli are evidenced by the score of research studies that are initiated by students in the field. Greater concern is being given to the development and establishment of ways to enrich early life experiences among the groups in the lower socioeconomic brackets. One recent outcome of the increasing concern about childhood, especially geared toward culturally deprived groups, is the Head Start Program.

The Head Start Program is an early phase of a systematic approach for bettering the early life of children. It provides simultaneously an improved setting prior to regular school for the culturally deprived child, and a long-needed source of basic data for objective research purposes. Any one of these two areas can very well justify the resources involved. The two combined, i.e., the experience for the child plus the evaluation and research potential, will certainly prove the value of the enterprise. The number of possible areas of research within the Head Start Program is only limited by the imagination of the investigators, since more knowledge is badly needed about almost all factors connected with the life of the culturally deprived child. The sooner that information can be pooled to establish stable theories of behavior concerning this type of population, the better. Then and only then can more efficient programs be instituted for long range improvement.

---

[1] James H. S. Bossard and Eleanor Stoker, The Sociology of Child Development (New York: Harper & Row, Publishers, 1966), p. 8, with permission from the publishers.

As part of this research effort the present project intends to dig into the dependence-independence dimension among children, and examine some of its social concomitants in a school setting. This will supplement the main interest of the enterprise, i.e., the collection of basic data to start the construction of a scale to be used in the early detection of extreme cases within the dependence-independence dimension.

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# CHAPTER II

## APPROACH TO THE STUDY OF DEPENDENCY AND ITS PSYCHOSOCIAL CONCOMITANTS IN EARLY CHILDHOOD

### Dependency: What it Means

The road from infancy to adulthood, under normal conditions, is a road from total dependency to self-support. The physically fragile and defenseless infant turns into a completely developed individual with a coordinated system of organs supported by an articulated and rigid structure, served by a set of life-supporting and sensory-discriminating systems. Psychologically, an inexperienced, highly emotional, insecure being can turn into a knowledgeable, serene, self-assured individual.

The link between these two bipoles (the totally dependent infant to the self-supported adult) is very far from being a single line. It is rather a highly complex net of avenues at different levels. As can be expected, the more involved a process is, the more difficult a study of it becomes. The development of independence seems to be one of those involved processes; thus, its study is rather elusive.

### General Theoretical Principles

Freud's theory of the psychosocial development of the child is the first major approach in which the development of independence in the child can be considered to be within the scope of a formal schema. Much of psychoanalitic theory did not, however, lend itself to the restrictive objectivity of experimental research. For this reason formal research within the context of the dependence-independence dimension is somewhat recent, and is marked by more modern and objective theoretical orientations. Heathers (1955) presents in concise form a framework of such recent trends. To start with, dependence and independence are considered in the following terms:

> A person is dependent on others to the extent that he has needs[1] which require that others respond in particular ways if these needs are to be satisfied. A person is independent of others to the extent that he can satisfy his needs without requiring that others respond to him in particular ways.[2]

Dependence and independence can be viewed in two general forms: instrumental and emotional. In both cases it should be understood that the concepts do not apply before the child has developed the ability to see some relation between his behavior and the attention which others give to him. Instrumental dependency involves getting

---

[1] Heathers presents "need" as "a theoretical construct which refers to perceptions and response patterns related to achieving and utilizing any goals in a particular class of goals (e.g., affection). Needs may be measured at the perceptual level by obtaining verbal reports (as in projective tests) or at the overt behavioral level by observing responses toward goals."

[2] G. Heathers, Acquiring dependence and independence: A theoretical orientation, J. of Genetic Psychol., 1955, 87, p. 277.

"assistance" in satisfying a need or achieving an end-goal. This assistance is an intermediate or subgoal. A child that feels cold can cry and thus get his mother to cover him so that he may feel warm. In this case his goal is relief from the cold, and crying is evidence of his instrumental dependency on the mother.

Dependence is emotional when the response of others is an end-goal in itself instead of intermediary to other end-goals. Heathers (1955) discusses the acquisition of the emotional needs of reassurance, affection, and approval. The need for reassurance stems from a condition of anxiety. Reassurance becomes then an anxiety reduction source. Seeking reassurance is a means of avoiding or reducing anxiety. Affection needs develop through the association of relaxation and comfort that accompanies caring for the child. Through such association the child comes to perceive others as sources of pleasure and comfort. The need for approval starts when the child's behavior, up to then accepted, must conform to specific standards. The child then starts to learn that only some responses on his part will move others to satisfy his needs. Some signs, like facial expressions and verbal responses, eventually become associated with the verbal signs of approval. Thereafter his needs for approval can be satisfied by such expressions.

There are many common forms through which dependency can be detected. An infant usually cries to attract attention. He also attracts attention by turning his head toward his mother, and by extending his arms toward her. In learning to talk, "mama" and "dada" are common ways of attracting attention as well. After that, scores of expressions come out, such as: "I'm cold," "I'm thirsty," "I'm scared," etc. When the child can move around freely, hanging on to mother's skirt, following mother or father around, asking to be picked up, showing off a new dress, etc., are frequent signs of dependency.

Instrumental independence involves the child's initiating his own activities. There are, however, some conditions which regulate or condition the meaning of initiated action. Heathers (1955) summarized five conditioning circumstances for interpreting the initiation of action as a sign of instrumental independence:

> (a) The more frustration a child encounters while performing an activity, the more will he tend to seek help. This hypothesis simply assumes that children learn to seek help as one way of overcoming obstacles in their goal-directed behavior.
>
> (b) The more a child expects that help is available, the more will he tend to seek it. If a child has learned through repeated experiences that others will help him under certain conditions, he will tend to resort to help when those conditions exist. If he usually has been refused help at such times, he will tend not to expect or seek it.
>
> (c) The more a child expects he can reach his goal unaided, the less will he tend to seek help. If the child has previously completed the activity or similar activities without help, he has a basis for expecting to succeed on his own and for going ahead without asking for help.
>
> (d) The more reassurance a child receives while performing an activity the less is he apt to seek help. This factor of reassurance is illustrated when someone says, "You're

doing fine," or "You can finish it." The hypothesis assumes that reassurance fosters instrumental independence by lessening anxiety in instances when the child is anticipating failure.

(e) The more a child expects approval for reaching a goal unaided, the less will he tend to seek help. This assumes the child has the need for approval and that this need provides a positive incentive for finishing an activity without help if he expects approval upon completing it.[3]

It should be added that one sign of independence can be only an indication of another form of dependence. The child that rushes to get dressed by himself, only with the idea of having his mother show her approval, is simply switching elements in the same system.

Emotional independence involves self-reliance. Self-reliance can be increased by increasing competency. Reassurance and controlled practice are useful ways of increasing self-reliance.

The last concept to be mentioned here is self-assertion. Self-assertion (Heathers, 1955) expresses a need to "master tasks or to dominate over people."[4] Essentially, mastery develops as a mechanism of gaining approval, after approval needs are acquired. The acquisition of dominance-needs and behavior may also be explained within the context of approval seeking.

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[3] _Ibid_., pp. 285-286.

[4] _Ibid_., p. 289.

## Work in the Field

Studies within the dependence-independence dimension are rather difficult. Part of the difficulty arises from the fact that the same behavioral outcome might hold different positions in the line, i.e., have different meanings, depending on the circumstances. A particular aspect of behavior might be considered a sign of extreme dependency for a child twelve years of age, while it could be an indication of high independence for a child five years old. A child of twelve who asks for his clothes might be showing dependence, since he is supposed (under normal circumstances) to be able to get his clothes by himself. If a five-year-old child asks for his clothes in order to dress himself while his mother does something else, the same behavior might be a sign of independence.

To increase the uniformity of research in this area, the types and intensity of behavior which are likely to be signs of either dependence or independence for different age or development levels need to be clarified. Only when these elements are adequately worked out, can the pertinent concomitants be understood in their proper perspective. The absense of standardized instruments is the first limiting condition in this work. Because of this problem almost every investigator is forced to develop his own operational definitions. Thus, results that are pooled in an attempt to come to general conclusions about overdependency's relationship to certain other variables, for example, could conflict. The conflict need not necessarily mean that there is not a definite relation between the two dimensions. It might be that different "things" will come under the term overdependency in the different works being pooled. Many other sources of confusion can be found, which are more or less common to scientific work in any area. Sears, et al. (1965) show how, for example, a methodological problem likely to pass undetected can have extraordinary importance in conditioning the findings. They report that:

> . . . the number of bids for attention when mother was busy was, on the average, about twice as great as when she was attentive. This finding exemplifies the principle that frustration induced by non-responsiveness of the mother is one of the determinants of attention seeking. From a methodological standpoint, however, the finding points to the fact that external stimulating conditions can make very great differences in a child's behavior, and thus can introduce distorting influences on presumed measures of trait qualities if the stimulating conditions are not held constant for all children or at least are not varied in a truly random fashion.[5]

A study by Beller (1955) highlights a point which is a very good example of another important specific problem in the study of dependency. It has to do with what might be termed the relation between separate dependence and independence measures for a single individual. Beller studied the connection between dependence and independence in young children (three and a half to five and a half years of age). Measures for dependence and independence were separately obtained. Children in this study showed significant differences from one another when compared on the basis of their composite dependence scores and their composite independence scores. The relationship between the two measures, dependence and independence (as a coefficient or correlation), was moderately negative (r = -.53). These findings suggested that a bipolarity assumption in the construction of measures of dependence and independence might be of doubtful value.

---

[5] R. R. Sears, L. Rau, and R. Alpert, Identification and Child Rearing (Cal.: Stanford University Press, 1965), p. 25.

Thus, a measure of dependency may be measuring different things. In addition, dependence and independence may involve different areas of behavior. We also have the problem of accuracy of the scale which purports to measure the child's dependence level.

In spite of possible limitations of research in this field, there have been some positive outcomes. A brief look at a small sample of the work done will give an idea of present trends.

## The Family

Dependency studies in childhood are mostly connected to family life. The mechanics of the development of independence are rooted in the parent-child relationships at home. For this reason, it might prove useful to bring in some details concerning family variables which might be involved in the process of the development of independence in the child.

Bossard and Boll (1966) present a family classification list that gives a clear idea of the range of variation in family settings. Their list classifies family situations in relation to three general headings. Within each of them, they make pertinent subgroupings. The three main headings for classification are: intrafamily relations, family patterns, and external factors (see Table 1).

Lambert and Lambert (1964) list general ways in which specific child rearing practices tend to vary among families, including:

(1) the demands for responsibility made on children; the number and kinds of duties expected of them

(2) the emotionally positive behaviors of mothers to their children, such as praise, absence of physical punishment, and general warmth

(3) the degree of control demanded over aggression toward peers both inside and outside of the family

(4) the degree of control over aggression and disobedience toward parents

(5) the extent to which the mother does the caretaking of babies

(6) the extent of her taking care of other children

(7) the degree of the mother's emotional stability (does she blow hot and cold?)[6]

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[6] W. W. Lambert and W. E. Lambert, Social Psychology (New Jersey: Prentice-Hall, Inc., 1964), p. 13.

TABLE 1

A CLASSIFICATION OF FAMILY SITUATIONS

| | |
|---|---|
| *Intrafamily Relationships* | |
| Excess of affection | The possessive home |
| | The oversolicitous home |
| | The overindulgent home |
| Normal affection | The companionable home |
| Discrimination in affection | The divided home |
| | The favored-child home |
| | The "impartial" home |
| Inconsistency of affection | The bickering home |
| | The unreliable home |
| Displacement of affection | The home with a new member |
| Lack of affection | The nagging home |
| | The frigid home |
| | The neglectful home |
| Frank rejection | The home of the unwanted child |
| Repression | The mother-controlled home |
| | The father-dominated home |
| | The overly demanding home |
| Anarchy | The child-dictated home |
| Confusion | The home with too many bosses |
| Approaching balance | The democratic home |
| *Family Patterns* | |
| Size | The large family |
| | The one-child family |
| Organization | The cooperative family |
| | The independent family |
| | The incomplete family |
| Activity | The nomadic family |
| | The "joiner" family |
| | The family of intelligentsia |
| | The "cliff-dweller" family |
| | The community-benefactor family |
| Values and goals | The social-climber family |
| | The materialistic family |
| | The overly religious family |
| | The scientific family |
| | The superstitious family |
| | The conventional family |
| *External Factors* | |
| Socioeconomic status | The inadequately financed home |
| | The suddenly wealthy home |
| | The large-inheritance home |
| | The mother-supported family |
| | The family marked by peculiar occupational characteristics |
| | The home of culture conflict |
| | The disgraced home |
| | The family in the public eye |
| Neighborhood | The farm family |
| | The small-town family |
| | The city family |
| | The summer resort family |
| | The misfit-in-the-neighborhood family |
| | The family in a substandard neighborhood |
| Health | The home of the invalid |
| | The home of the defective |

Source: *Op. cit.*, Bossard & Stoker, p. 291.

It may be assumed that differences in family situations might mean important differences in the child's experience. Each child is unique, which in itself is a basic source for behavior differential among children. The differences in home environment might possibly be, at least in some areas, the strongest single source of variation in children's behavior. Within the context of the home or family element as possible explanations of child dependency, some ideas have been pooled. Sears, et al. (1957), with the help of some information about dependency collected as part of a broader work, could not find evidence to support a theory that the expression of warmth and affection by the mother to the young infant would increase the level of dependency, as they measured it. Moreover, they found some evidence of a positive relation between parental rejection and level of dependency. Their measure of dependency was rather general however, and for this reason findings were not considered strong. Attention seeking by the child, wanting to be near the mother, and objection to separation were the areas considered for an overall rating of dependency. Sears, et al. (1953) also reported a relationship between dependent behavior of the child at school and severity of weaning. These results and those reported by Wittenborn (1955) connecting dependence in 5-year-olds and parental rejection, are comparable. McCord, McCord and Verden (1962) found something similar even though they recognized some possible limitations in the representativeness of their sample. They reported that "lack of cohesion within the family, and parental rejection of the child apparently served to heighten, rather than to decrease, the child's overt dependent behavior."[7]

The above work taken as a whole shows a tendency for dependency to be somehow connected to conflict in the mother-child relations. It must be said nevertheless, that the authors themselves suggest more investigation before such results can be considered definite.

## Stability of Dependence

Though the lasting effects of early life experience and behavior are what make its study so important, for the sake of brevity, only short excerpts will be mentioned here concerning the stability of behavior in relation to the problem of dependency. After that, some work connecting dependency with behavior in childhood, an area which will be nearer to this research project, will be considered. The amount of dependent behavior tends to decrease with age (Gewirtz, 1948; Boehm, 1947; Heathers, 1953; and Sears, et al., 1953). It is not always clear though, if it is the amount of dependent behavior which is changing or if the signs are being replaced by others. The fact that some types of dependent behavior are more "accepted" than others (Heathers, 1955) might explain why some dependent behavior tends to disappear. In work reported by Kagan and Moss (1960) concerning the stability of behavior from childhood to adult life, it was revealed that dependent behavior was stable for women. For men the trend was only minimally stable. Over 60 percent of the correlations between childhood (ages 6-10) dependency ratings and adult dependency ratings were significant among females. For males only 9 percent of the correlations were significant. A study by McCord, McCord and Verden (1962) based on a sample of boys, reported that,

---

[7] W. McCord, J. McCord and P. Verden, Familial and behavioral correlates of dependency in male children, Child Develpmt., 1962, 33, p. 313.

> In adulthood, the dependent boys were more likely to have experienced a psychotic breakdown, although they were not more likely to become alcoholic or criminal. To some degree, therefore, we may consider dependent behavior in childhood (and its correlates of anxiety and sexual confusion) as an indicator of later pathology in adulthood.[8]

Some patterns of behavior when fixed are likely to last. The dependence behavior pattern might well fall within this category. The risks of not increasing the chances for a child to improve his behavior early, can be clearly estimated by Levy's comments (1943) after some time working in the field:

> If the picture in infancy is held fast in its essential patterns throughout life, the result would be the fixed role of a demanding, selfish, tyrannical person, anticipating constant attention, affection and service; responding to denials of his wishes, or to requirement

---

[8] *Op. cit.*, McCord, et al., p. 325.

> to discipline, with impatience, outbursts of temper, or assault; restless and completely at a loss in solitude where not immersed in a book; gifted in conversation and in use of every device through charm, wheedling, coaxing and bullying, in order to get his own way.[9]

## Dependency and Social Behavior in Childhood

Studies connecting dependency with other forms of behavior in childhood, and studies connecting dependency with peer status, are being frequently reported. Among them, McCollum, Marshall, and McCandless (1957, p. 413), reported finding a positive relationship between a teacher's rating of "mature dependency" in children and sociometric status, as measured on a test of creativity. Four- and five-year-old children were used in their study. In a study with 38 preschool children, Marshall and McCandless (1957) found a negative relation between dependency and peer acceptance. Sociometric scores and teachers' judgments of children's popularity were among the variables negatively correlated with dependency. In this study the measure of dependency was based on the observed number of social interactions with adults in free play nursery school situations. In 1961 McCandless, Bilous, and Bennett reported on a study intended to relate popularity to dependency on adults, and sex among preschool-aged children. The idea was to see if dependency would interfere with popularity for one sex more than for the other. The study used 23 boys and 32 girls. Popularity and emotional dependency were found to be negatively related. The same results were observed in relation to "total adult contacts" and popularity. The index of adult dependency interfered more with the popularity of girls than with that of boys.

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[9] D. M. Levy, Relations of maternal overprotection to school grade and intelligence tests, Amer. J. of Orthopsychiatry, 1943, 3, p. 26.

Heathers (1955) in a study of 40 children (20 two-year-olds, and 20 four- and five-year-olds in nursery school) found evidence that: " . . . emotional dependency on adults declines with age relative to dependence on other children."[10] Also, the data supported the hypothesis that clinging and affection seeking decline with age relative to attention or approval seeking. These results favor the interpretation that, in the process of socialization, emotional dependence tends to shift away from a passive, "infantile" dependence on adults toward a more active and assertive dependence on one's peers.

Crandall, Preston and Rabsom (1960) studied some possible antecedents of achievement motivation in 30 three-, four-, and five-year-old children (19 boys and 11 girls) and their mothers. Childrem were observed in a nursery and at home. In addition, the mother's relation to the child's behavior was studied. Results were summarized as:

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[10] Glen Heathers, Emotional dependence and independence in nursery school play, J. of Genetic Psychol., 1955, 87, p. 37.

(a) High achieving children were less dependent on adults for help and support.

(b) The children's behaviors were moderately, but demonstrably, consistent from home to nursery school.

(c) Mothers who frequently rewarded achievement efforts were less nurturant but no more or less affectionate than mothers who were less prone to do so.

(d) Neither maternal affection nor independence training was predictive of the children's achievement behavior while direct maternal rewards of achievement efforts and approval-seeking were.[11]

Rosenthal (1966) studied generalization of behavior. Her results showed that generalization of dependent behavior from mother to stranger goes on a gradient. She found also that dependent behavior increased with increased anxiety, and that the higher the level of dependency on the mother, the higher the generalization to a stranger.

The intercultural aspects of dependency have been examined also. Boehm (1957) reports findings on dependency in a study using Swiss and American children. A total of 69 students (29 Swiss and 40 Americans) constituted the sample. The study using the "method clinique" showed some cultural differences. American children were emancipated from their own adults at an earlier age than the Swiss. They were less subjugated by adults and more dependent on peers, enjoyed freedom of thought and independence of judgment earlier, while developing a more autonomous, and less complex, conscience. Some additional supporting evidence in this context has been discovered by Stendler (1954) between American and French children.

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[11] V. Crandall, A. Preston, and A. Rabsom, Maternal reactions and the development of independence and achievement behavior in young children, Child Develpmt., 1960, 37, p. 250.

Minturn and Lambert (1964) completed a broad study of six different cultures regarding practices in raising children and their antecedents. A large amount of data was analyzed through a factor analytical approach. This work concluded that generally, differences in the pressures that children met some of which, in our context, might be related to the phenomena of dependency, are due mostly to differences among mothers rather than among cultures. These findings, nevertheless, should not be taken to mean that cultural elements are of no importance. The authors' concluding remarks help make this clear while emphasizing the intracultural variations.

> Our message to psychologists from antropology is not to ignore the cultural context of individual behavior. Our message to antropologists from psychology is not to ignore the precise measurement of individuals that specifies variation of behavior among people who share a common culture.[12]

The scattered and limited pieces of research mentioned here, as a sample of work done in the field, do not show the essential cohesiveness that might justify any attempt to come to a set of structured principles. Only some general ideas can be seen. These include the following:

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[12] Minturn, Lambert, et al., Mothers of Six Cultures (New York: John Wiley, 1964).

(1) There is tendency for dependency to show in the presence of some form of rejection.

(2) Dependency behavior may last into later life.

(3) Dependency upon adults correlates negatively with popularity among peers.

(4) The amount of independent behavior (and possibly the type) varies with age; the amount decreases with age.

(5) Some dependent behavior in the home generalizes to out-of-the-home situations, though with less intensity.

It is evident that in all areas concerning the study of independence more work is needed before clear trends can be established and proper integration with other areas of child development can proceed. Among other things, uniformity of operational definitions and standard instruments for the assessment of level of dependence or independence are badly needed. While dealing with a very restricted portion of the problem--the relation between independence and social behavior in a school setting--the present project purported to open the way toward a measuring instrument.

# CHAPTER III

## METHODOLOGY

This project was intended to serve three basic purposes:

(1) to allow author direct research experience with small children,[1]

(2) to add some evidence to the study of behavioral school-setting concomitants of child dependency, and,

(3) to provide the first step in the the development of an instrument that could have wide application in the identification of out-of-the-norm cases within the dependence-independence dimension among small children (approximately ages 2 to 10 years). The instrument is intended to be of use in the study of personality, general adjustment, and learning problems among small children.

### Definition of Terms

The basic concepts in this project will have the following operational definitions:

(1) Level of independence--A total score accumulated on the basis of the child's behavior in the home. The mother provided information covering the following three basic areas:

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[1] The author's research experience in the educational field has mostly involved children from the 4th grade up and adults in the school system in Puerto Rico.

(a) physical independence (getting dressed without help, combing his hair, and the like),

(b) emotional independence (relative absence of behavior such as crying, sitting in lap, etc.), and

(c) making decisions, such as selecting clothes to wear, deciding on a birthday present, etc. (see Appendix I).

(2) Social Behavior--

(a) Social competence: teacher's estimated rank of the child's social competence (manners and conduct in the room and in play situations). Ranking was done within each school group.

(b) Popularity: teacher's estimated rank of the child's popularity within his group.

(c) Interpersonal and communicative competence: total score on selected items from Cervenka's Rating of Interpersonal and Communicative Competence (see Appendix III).

(d) Status among peers: total score based on peers' choice of subject to play with them or to sit by their side.

(e) School adjustment: total score on Cervenka's General Inventory of Social, Personal and Emotional Adjustment, Part II: Record of Observation of School Adjustment and Behavior (see Appendix II).

(3) Intelligence level--

(a) the teacher's estimated rank of child's level of intelligence within his group.

(b) total score on the Stanford-Binet Test of Intelligence, Form LM.

(4) Grade--

Teachers' rankings based on his(her) estimates of child's achievement during the year.

## Hypotheses

Several hypotheses were tested in this project. Hypotheses were based on the general trends of findings in previous research in the field.

(1) Level of independence will differentiate ethnic groups. Ranking order will be Negro > Anglo > Mexican.

(2) Level of independence will correlate positively with each one of the measures of social behavior:

  (a) teacher's estimated rank of child's social competence

  (b) teacher's estimated rank of child's popularity

  (c) Interpersonal and Communicative Competence score

  (d) status among peers

  (e) school adjustment

(3) For high dependent girls, status among peers will be lower than for high dependent boys.

(4) Intelligence will correlate positively with level of independence.

(5) Achievement will correlate positively with level of independence.

(6) Age will correlate positively with level of independence.

Of the hypotheses listed, number one does not follow clearly from research findings herein reported. This hypothesis is connected to cultural differences. Two factors were considered as a basis for the rank order predicted:

(1) Two primary conditions within the Negro family situation should help the child to help himself at an earlier age. First, the mother is forced to assume the role of only parent because of divorce or separation. As a result of the aforementioned condition of being the only parent, frequent absence from the home on the part of the mother is quite common. Thus the child spends less time with her. Secondly, there tends to be a larger number of children in the Negro family, which provides more company for the child aside from the mother.

(2) Some studies have reported the Anglo group to be more independent than some other cultural groups. Based on such findings, an examination of the Latin-American tradition of closer family ties will then make the Mexican more likely to be less independent than the Negro and the Anglo.

## Administrative Procedure

Originally, this project was intended to include a sample of 60 children with equal representation of the three ethnic groups (Anglo, Mexican, and Negro). It was intended also to include the same number of girls as boys. Later, when an inventory of the Head Start groups in the Austin Independent School District was made, some changes were found necessary. In the first place, some of the groups were involved in other types of special activities in which case the addition of another one would not have been the best for them nor for the project. Secondly, groups of children were usually 15 in number, and it seemed better to use the groups as a whole. In the third place, fewer Anglos were found in the Head Start groups in Austin. After careful consideration, five groups totalling 75 children were used. One child was later discarded because the parents moved and the measure of dependency could not be obtained.[2] Of the five groups of children in the sample, two were Mexican (with one Anglo child in one of them), one was entirely Negro, and two were a mixture of the three ethnic groups. Each sex was almost equally represented in all the groups.

## Preparation of Instruments and Collection of Data

As soon as the project was authorized by the Austin Independent School District, the author started making short visits to the groups in order to become better acquainted with the children. Meanwhile, the instruments to be used were prepared.

After examination of some of the lists of items used in assessing the level of dependency in several projects, a list of 82 items was prepared as a preliminary instrument to be used in assessing the level of independence of the subjects.[3] This list was intended to cover three basic areas:

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[2] Four other students are not included in some of the basic analyses because of missing information. Unless otherwise specified, therefore, the analyses include only 70 subjects.

[3] More details on the work with this instrument are presented later. See pp. 53-55.

(1) Instrumental dependence; i.e., assistance in taking a bath, getting dressed, and so forth.

(2) Emotional dependence; i.e., crying when mother leaves home, sitting on her lap, following mother around, etc.

(3) Basic decisions such as deciding what clothes to wear, deciding hour to go to bed, selecting a small birthday gift for a friend, etc.

This first list of items was checked and prepared in the form of a questionnaire and tried with four mothers. The trial proved that some items needed clarification, some were not pertinent, and some needed to be added. The final list included 72 items. This instrument will be identified as Inventory of Dependent and Independent Behavior (IDIB), hereafter. This was the basic instrument used to obtain information from the mothers concerning the children's dependent behavior. While the mother interviews were being conducted, other items were discovered which were not sufficiently adequate. Some lacked clarity, others involved unnecessary duplication, and still others lacked discriminating power, as all children performed at the same level (the highest) with them. After all the mother interviews were conducted, such items were discarded. This scrutiny left 47 items that were considered usable. The list of those items is shown in Appendix I.

To acquire information about the children's behavior in school, six sources were used. For detailed behavior in school, an instrument that has been developed by Edward Cervenka[4] seemed very adequate. Hopefully, the project would add useful data for refinement of the instrument as well. This instrument was filled out by the teachers for each individual child during the last two months of the school year. The questionnaires were filled out at such a time as to give the teachers ample opportunity to observe all the pertinent behavior in the children in each of their groups. The instrument included 78 items. Some sections of another instrument by Cervenka[5] were used to acquire additional information about the children. A set of five pictures was used with this instrument. The pictures shown to the child (in order of presentation) were:

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[4] Inventory of Social, Personal and Emotional Adjustment, Part II: Record of Observation of School Adjustment and Behavior (ROSAB) (see Appendix II).

(1) a black puppy

(2) two children brushing their teeth

(3) a clown

(4) a boy dreaming about playing Indians (to be used with males), and a girl dreaming about a birthday party (to be used with girls)

The children were taken individually for a 15-minute talk with the observer, using the pictures as the topic. The pictures were shown to the child, one at a time. The observer was interested in seeing if the child would show evidence of fear, anxiety or nervousness, and in assessing his ability to communicate with an adult on a one-to-one basis.

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[5] Rating of Interpersonal and Communicative Competence (RICC) (see Appendix III).

Immediately after the interview the observer filled out an observation form for each child. After that, the next child was called. The children were to think of this part of the project as a "game." Appendix III shows the list of behaviors checked for each child in this part of the project.

Another kind of information was obtained directly from the children. It concerned peer preferences. Again, each child was called individually for a game "about which they could not tell the other children." Each subject was asked:

(1) "Which two children would you prefer to be seated by your side all the time, if you could decide;"

(2) "Which two children would you select to play with, all the time, if you could decide that."

This information was recorded on a 3 x 5 card for each child.

The fourth source of information was the teacher. Each teacher was given four sets of cards per group and asked to rank the children in each of her groups according to four criteria:

(1) ranking the children according to what the teacher considered the popularity of each child within his group to be;

(2) ranking according to social competence (conduct with other children, discipline, manners, and the like);

(3) ranking according to the teacher's estimate of the child's intelligence (teacher had no information of children's iQ's);

(4) ranking according to the grade teacher would have given the children (only on the basis of achievement) if such a grade were to be given.

Some additional data concerning the families of the subjects was collected. It was obtained from the application forms filled out by the parents for admittance of their child(children) to the Head Start Program.

The last data was an LM form of the Stanford-Binet Test of Intelligence administered to each child.

## Processing the Information

Information collected was edited before the school year was over, and several additional visits were made to the parents, to the groups, and to the teachers to clarify details, or add missing information. A general appraisal of the data was then made to establish the general pattern of findings. Meanwhile, basic information was coded and transferred to punched cards. Total scores were obtained for each child on each specific variable. Such scores included the independence score, school adjustment score, status among peers score, IQ, Interpersonal and Communicative Competence score, and the four ranking scores made by the teachers. These scores were then used to compute the desired statistics.

Correlation coefficients (and the corresponding means and standard deviations) were computed between all the variables. Pertinent tests of significance were done. For the two major instruments i.e., the IDIB and Cervenka's ROSAB, factor analysis was done in order to group items in basic areas.[6] The principal axis method was used in factor analyzing the data. Rotation of axis was done by the varimax method.

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[6] Authorization was obtained from Mr. Edward Cervenka to run factor analysis with his instrument in order to use it in the future, while getting more information to work in the next steps of the development of the scale for the assessment of level of independence.

# CHAPTER IV

## FINDINGS

The findings in this study are presented under three general headings:

(1) Characteristics of the sample
  (a) the schools
  (b) the family
  (c) general characteristics of the subjects
(2) The test of the hypotheses
(3) The development of the scale

### The Schools

The five Head Start groups used in this study came from three elementary schools in the Austin Independent School District. One of the schools (Campbell Elementary School) is located close to the central core of the city. The population in the neighborhood where the school is located is essentially Negro. One group was used from this school. All of these children were Negro, which is the dominant ethnic group in the population of the whole school. The second school in the sample (Palm Elementary School) is located near the business center of the city. It was the traditional school of the city in the past. Its present enrollment is essentially Mexican-American and comes from the eastern side of Austin, immediately south of the Negro neighborhood in which the previous school is located. Two groups were used from this school (totalling 29 children, 28 of whom were of Mexican origin). The other child was an Anglo girl.

The third school (Mathews Elementary School) is located to the west of Austin, within a mixed ethnic and socioeconomic residential area. This is the only school in which the three ethnic groups are found in significant proportions. Two groups were used from this school. These included 9 Anglo children, 14 children of Mexican-American origin and 7 Negroes (a total of 30 children).

## The Family

Very little information was collected concerning the family. Some of the information provided by the application forms for admission to the Head Start Program was used. The idea was to avoid adding anything to the interview which could reduce the mother's willingness to provide information of a more pertinent nature.

## Sex of Guardian

The information concerning sex of guardian on the application form provided an indirect index of the marital status of the parents.

This information is not exact. The only thing that can be ascertained is that when a female guardian is reported, one of the following is involved: divorce, separation, or, in some cases, no evidence of a male in the form of guardian or provider. It seems, moreover, that some technicalities of marital status can be quite misleading in some of the cases. The terms divorce and separation in an application form might involve different actual arrangements among different families. This information should, therefore, be taken cautiously.

Information about sex of guardian was obtained for 67 of the subjects in the sample. Of those, 51 cases reported a male guardian and 16 a female. The presence of a female guardian was more common among Negro children, especially at the Campbell School. In this group twelve of the families reported the sex of the guardian, and of those twelve, seven reported a female. Among the 39 Mexican-American families who reported a guardian, six reported females. Five of the six were from the 26 Mexican-American families of Palm School children. No Anglo family reported a female guardian.

Mathews School showed the lowest rate of female guardians with 14 percent. The corresponding rates among all the families in each of the other schools was 19 percent at Palm and 58 percent at Campbell.

## Family Income

As was the case with the sex of guardian, the information concerning family income should also be taken cautiously. In the first place, the income reported usually came from the guardians or from a welfare agency. There was no information as to whether or not any other income might have been directly or indirectly involved (i.e., from other adults in the family who were working). In addition to that, income by itself is not a good estimate of the family's financial situation. The family income should be related to the number of persons dependent upon it. On the basis of information collected in this study there is no assurance of either the real family income or the exact number of persons per family. For this study, however, the information regarding income was not extremely important. With very rare exceptions it was evident, from observations made at the interviews, that almost all the families were from a very low socioeconomic bracket. There were only six cases among the 74 families, that could possibly be considered as being outside the very low socioeconomic group in terms of observable standards of living. Table 11 of Appendix IV shows the income reported.

## Number of Children in the Family and their Age Range

The number of children per family showed considerable variation among the families of Mexican origin and among the Negroes (1 to 10 children). Among the Anglos the number ranged from 2 to 5 children per family. The average number of children per family was highest among the Mexicans (5.1), next among the Anglos (4.0), and last among the Negroes (3.7). No information was collected connecting the number of children with the age of the mother, so these averages do not necessarily mean a real deviation from any general trend concerning the number of children that might be common among the different ethnic groups. For purposes of this study the main interest was the number of siblings in the families of the subjects and their age variation. For this last area of interest (age variation), a mean of birth-time interval between siblings[1] was computed. This was done by subtracting the age of the youngest child in the family from that of the oldest. These differences were then added for each ethnic group and the sum divided by the total number of children in the corresponding ethnic groups. The average birth-time interval was 1.3 for the Negro children, 1.5 for the Mexican-Americans, and 1.7 for the Anglos. The groups were therefore similar in terms of age relationships between siblings.

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[1] This is the average number of years between the days of birth for the children in each family. The index shows how near the children are in age.

## General Characteristics of the Subjects

### Sex and Age

The 70[2] subjects were divided evenly in terms of sex. Their ages (in months) ranged from a low of 66 months to a high of 85. The mean age for the whole sample of 70 children was 74.2 months with 3.90 as standard deviation. The 35 males had a mean age of 75.6 months with a standard deviation of 3.14; the mean age of females was 74.8 with a standard deviation of 4.45. Table 11 of Appendix IV summarizes the basic characteristics of the subjects.

### Ethnicity

Forty of the seventy subjects were Mexican-Americans, 21 were Negroes, and 9 were Anglos. Of the 40 subjects of Mexican-American origin, 19 were males and 21 females. Among the Negroes, 11 were males and 10 females. Five of the 9 Anglos were males.

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[2] This is the basic group from which all the information connected to the hypotheses was obtained. For the other four subjects some information was missing. They are included only in the rank correlations between the four rankings made by the teachers.

## Intelligence

Form LM of the Stanford-Binet Test of Intelligence was administered to each of the subjects in the sample. The examiners reported no evidence of a child who did not understand the basic instructions of the test. Some of the children of Mexican-American origin evidenced, as was expected, more difficulty than the rest of the sample. This fact should be taken into consideration when comparing the IQ score means for the different groups. The IQ score for Anglos showed the highest mean (101.89). This group also showed the highest standard deviation (15.60). Mean IQ for the Negro and Mexican-American groups was almost equal (84.14 and 83.13, respectively). Standard deviations were 12.96 for the IQ scores among the Negroes and 11.48 for the scores among the Mexican-Americans. The children of Mexican origin showed the lowest IQ (though similar to the mean for the Negro) and the lowest standard deviation.

## The Test of the Hypotheses

The first hypothesis predicted differences in level of independence between the three ethnic groups. The following order was predicted: Negro > Anglo > Mexican. The mean scores for level of independence for the three groups was as follows:

| Ethnic Group | Mean | Standard Deviation |
|---|---|---|
| Anglo | 159.3 | 21.9 |
| Mexican | 172.1 | 21.7 |
| Negro | 174.5 | 22.1 |

It can be seen that the mean for the Negro group is somewhat larger than for the Anglo, and similar to the mean score for the Mexican-American. None of the differences were large enough, however, to be considered significant in the base of "t" tests. The null hypothesis of no difference between the groups could not be rejected with this evidence.

The second hypothesis connected level of independence with social behavior in the school setting. Five different measures of social behavior were obtained:

(1) social competence, as estimated by the teacher

(2) popularity within the group, as estimated by the teacher

(3) a communication competence based on a short interview

(4) a status among peers score, based on each subject's expressed choice of peers to sit by his side or to play with him

(5) a social adjustment score, based on Cervenka's schedule

The first two of these five measures were given in the form of a rank. For this reason they were analyzed separately and not as part of the composite score formed by the other three, which are on the base of scores. The correlations obtained in the analysis of each of these two variables with level of independence were too small. Only one of them was significantly different from zero (n = .50, p < .05, one-tail test for 14 d.f.). Table 2 shows the coefficients of correlations obtained.

A pooled score was obtained for the other three variables. Coefficients of correlation were then computed for the pertinent groupings: total sample, groups by sex, ethnicity, age, and IQ. Correlations obtained were as follows:

| Group | Coefficients of Correlation of Composite Measure and Level of Independence | Number of Subjects |
|---|---|---|
| Total | .28** | 70 |
| Sex | | |
| Male | .19 | 35 |
| Female | .33* | 35 |
| Ethnicity | | |
| Anglo | .40 | 9 |
| Mexican | .35** | 40 |
| Negro | .12 | 21 |
| Age Group*** | | |
| Less than 75 months | .25 | 41 |
| 75 months and above | .22 | 29 |
| Intelligence Level*** | | |
| Mentally Defective or Borderline | .14 | 27 |
| Low average or higher | .28* | 43 |
| Level of Independence | | |
| Less than the mean | .39* | 28 |
| Mean or above | .21 | 42 |

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* Significant at the .05 percent level.

** Significant at the .025 percent level.

*** Only two groups were formed, dividing at the mean, since more divisions would have reduced the number of subjects in the groups too much. Low average was included with the higher group to avoid putting too many Mexican-Americans in a low group since their IQ's were likely to have underestimated their abilities.

TABLE 2

RANK CORRELATIONS BETWEEN LEVEL OF INDEPENDENCE AND THE TEACHERS' RANKINGS OF THE S'S FOR SOCIAL COMPETENCE AND POPULARITY, FOR EACH SCHOOL GROUP

| School and Group | Correlations of Level of Independence with: | | No. of Subjects |
|---|---|---|---|
| | Social Competence | Popularity | |
| Mathews I | .02 | -.21 | 15 |
| Mathews II | .34 | .01 | 14 |
| Palm I | .25 | .31 | 14 |
| Palm II | .23 | .39 | 13 |
| Campbell | .5 $p < .05$ | -.10 | 14 |

The correlation between the distribution of the composite scores and the level of independence for the total sample was significantly different from zero. It was not, however, very high. When subgroups were used it was observed that usually only one of them attained or approached significance. As with the correlation for the total sample, none of these correlations (including those significantly different from zero) was large. The set of correlations obtained with the composite scores formed by the three measures showed exactly the same absolute values when only two of the measures[3] were used to form another composite score. This analysis using only two measures seemed pertinent when it was observed that the correlations between level of independence and one of the three pooled variables (the communicative competence) were nonsignificant for the total sample and for all the subgroups considered.[4] The other two variables, school adjustment and status among peers, when correlated separately with level of independence showed patterns nearly identical with those obtained when the two were pooled. Table 3 presents the correlations obtained in each case.

In two of the subgroupings presented in Table 3 a shifting is observed. In the first of the two cases, i.e., in the ethnic groups,

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[3] ROSAB and IDIB.

[4] The absence of a relationship between level of independence and this measure might have been due to the fact that the observer, the author, had become too familiar with the subjects by the time of the interview.

## TABLE 3

### CORRELATIONS BETWEEN LEVEL OF INDEPENDENCE AND MEASURES OF SOCIAL BEHAVIOR FOR THE BASIC GROUPINGS

| Group | Correlations of Level of Independence with: (1) School Adjustment | (2) Status among Peers | (1) + (2) | Number of Subjects |
|---|---|---|---|---|
| Total | .28** | .27** | .28** | 70 |
| Sex | | | | |
| Male | .23 | .10 | .23 | 35 |
| Female | .31* | .38* | .32* | 35 |
| Ethnicity | | | | |
| Anglo | .58 | .27 | .43 | 9 |
| Mexican | .34** | .26 | .36** | 40 |
| Negro | .10 | .38* | .13 | 21 |
| Age Group | | | | |
| Less than 75 mo. | .28* | -.03 | .25 | 41 |
| 75 months and above | .18 | .53*** | .25 | 29 |
| Intelligence Level | | | | |
| Defective and Borderline Def. | .15 | .05 | .15 | 43 |
| Low average and above | .28* | .34** | .29 | 28 |
| Level of Independence | | | | |
| Less than the mean | .38* | .14 | .38* | 42 |
| Mean or above | .19 | .14 | .21 | |

*Significant at .05 level.
**Significant at .025 level.
***Significant at .005 level.

the Mexican-Americans show the only significant correlation for school adjustment while for status among peers, the only significant correlation is among the Negroes. A similar shifting occurs in the groups by age. In trying to clarify these phenomena, subsequent analyses were done with subdivisions by sex within the groups involved. Tables 4 and 5 show that in all cases the strength of the correlations was concentrated among the female groups. In Table 4, for example, it can be seen that the correlation between level of independence and school adjustment for the Mexican-American females is .44 ($p < .025$) while only .18 for the males. Among the Negroes, for status among peers, the correlation for females is .62 ($p < .05$) while for the Negro males it is -.01. In the groupings by age level within sex, the younger females (less than 75 months) showed a correlation of .43 ($p < .05$) for school adjustment and only -.05 for status among peers (Table 5). In the older females, status among peers showed a correlation of .59 ($p < .01$) and school adjustment shows only .21. The males did not show significant differences in this analysis. The results obtained made it clear that the two measures (school adjustment and status among peers) were showing the same basic pattern of relation with level of independence. Since these last two measures were the most refined among the five used,[5] conclusions in relation to the hypothesis being tested would rely more

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[5] See page 44, footnote 4.

TABLE 4

CORRELATIONS BETWEEN INDEPENDENCE AND SCHOOL ADJUSTMENT AND STATUS AMONG PEERS FOR THE GROUPS, BY SEX AND ETHNICITY

| Variables Correlated | | Male | Female |
|---|---|---|---|
| | Anglo | (N = 5) | (N = 4) |
| Independence with: | | | |
| School Adjustment | | .709 | -.205 |
| Status Among Peers | | .313 | -.749 |
| | Mexican | (N = 19) | (N = 21) |
| Independence with: | | | |
| School Adjustment | | .178 | .441<br>$p < .025$ |
| Status Among Peers | | .198 | .296 |
| | Negro | (N = 11) | (N = 10) |
| Independence with: | | | |
| School Adjustment | | -.125 | .213 |
| Status Among Peers | | -.009 | .619<br>$p < .05$ |

### TABLE 5

### CORRELATIONS BETWEEN INDEPENDENCE AND SCHOOL ADJUSTMENT AND STATUS AMONG PEERS FOR THE GROUPS, BY SEX AND AGE

| Variables Correlated | | Male | Female |
|---|---|---|---|
| | Less than 75 months | (N = 24) | (N = 17) |
| Independence with: | | | |
| School Adjustment | | .139 | .434<br>$p < .05$ |
| Status Among Peers | | -.037 | -.048 |
| | 75 months and above | (N = 11) | (N = 18) |
| Independence with: | | | |
| School Adjustment | | .011 | .214 |
| Status Among Peers | | -.391 | .587<br>$p < .01$ |

on their results. These results point toward a positive correlation, though not high, between social behavior and level of independence. It should be noted, nevertheless, that the highest correlations were observed among the female children, the youngest and the highest of the two groups in terms of intelligence level. This trend for the correlations to be higher among these particular groups will be explained later.

The third hypothesis predicted that high dependent girls would be lower in status among peers than high dependent boys. To test this hypothesis it would have been well to take the cases of extreme dependence where any possible effects would be more clearly evident. The size of the sample in this study made taking extreme cases such as all the subjects one standard deviation above or below the mean of the distribution of scores for level of independence in each of the groups not practical. Due to this limitation the sample was divided into two groups according to sex, and then the distribution for level of independence for each sex was divided at the mean. The group lower than the mean in the distribution of scores by sex was taken as the high dependent group in each case.

The mean score for status among peers in the high dependent groups of males and females, and the corresponding standard deviation were:

| | Mean | SD |
|---|---|---|
| High dependent males | 6.7 | 4.0 |
| High dependent females | 5.1 | 5.0 |

A "t" test of the difference between these two means showed no evidence contrary to a null hypothesis of no difference between means for status among peers, for high dependent males and high dependent females. Analysis with subgroupings within sex and level of independence was not intended because the number of subjects was too small.

Hypothesis 4 predicted a positive correlation between intelligence and level of independence. This hypothesis and the next one, which predicted a high correlation between achievement and level of independence, will be examined at the same time, though independently.

Even though the most objective information obtained about intelligence of the subjects was the IQ score obtained from Form LM of the Stanford-Binet Test of Intelligence, some additional information obtained from the teachers will be examined.

The coefficients of correlation obtained between the level of independence and the IQ scores, for the main groups were as follows:

| Group | [illegible]relation Between Level of Independence and IQ | Number of Subjects |
|---|---|---|
| Total | .00 | 70 |
| Sex | | |
| Males | -.31 $p < .05$ | 35 |
| Females | .29 | 35 |
| Ethnicity | | |
| Anglo | -.20 | 9 |
| Mexican | .12 | 40 |
| Negro | .22 | 21 |
| Age Level | | |
| Less than 75 months | -.08 | 41 |
| 75 months or more | -.17 | 29 |

It can be seen that these results show no evidence against a null hypothesis of no correlation between intelligence and level of independence. The analysis with the information in the rank orders established by the teachers in relation to achievement and estimates of intelligence for the children in each group yielded somewhat different results. The coefficients of correlation obtained in this case were:

| School and Group | Coefficient of Correlation Between Level of Independence and: | | | | Number of Subjects |
|---|---|---|---|---|---|
| | Intelligence | | Achievement | | |
| Mathews I | -.16 | | -.14 | | 15 |
| Mathews II | .58 | $p < .025$ | .78 | $p < .005$ | 14 |
| Palm I | .52 | $p < .05$ | .40 | | 13 |
| Palm II | .63 | $p < .01$ | .64 | $p < .01$ | 14 |
| Campbell | .27 | | .26 | | 14 |

There is some experimental evidence (Baldwin, 1962, and others) to suggest that IQ as measured by tests of intelligence, and teachers' estimates of children's intelligence may not show a high correspondence.

The discrepancy observed in the two series of correlations should therefore be taken very cautiously. The most objective evidence nevertheless points toward no correlation between the two variables. Concerning achievement and level of independence, based on the coefficients of correlation obtained, the results are inconclusive. The above tabular presentation shows no definite pattern in the set of correlations. The last hypothesis (6) predicted a positive correlation between age and level of independence. The correlations obtained here were all positive. For the total sample, the correlation observed was .22 (nonsignificant). For the groups by sex, the correlations were .38 and .14 for males and females, respectively. With 35 d.f. in each of the groups by sex, the correlation of .38 is significant ($p < .025$). Among the groups by ethnicity, the highest and only significant correlation was observed among the Mexican-Americans (.41 $p < .025$ for 38 d.f.). It can be said in conclusion that there is a slight tendency for a positive correlation between age and level of independence, within the age range of the sample studied.

The general pattern of the findings in relation to the hypotheses considered in this project makes some basic consistency evident. Level of independence shows a trend to correlate positively with the two basic measures considered, i.e., social adjustment and status among peers. Level of independence does not seem to be a function of level of intelligence, and shows a trend to correlate positively with age level. The pattern of findings is, however, less definite than the author's expectancies. It will be seen later that the relationships observed may not have been more definite due possibly to limitations of the basic instrument.

## The Work with the Scale

This work with the scale will be presented in two parts:

(1) The work with IDIB

(2) Factor analysis for Cervenka's ROSAB to measure school adjustment.

The first part will contain two sections:

(a) The Inventory of Dependent and Independent Behavior (IDIB) for this Project.

(b) The statistical analysis.

### The Inventory for this Project

The Items. The basic idea in the item construction phase of this project was to provide a wide range of small pieces of the behavior common to small children in relation to mother and father. The focus was on the type of behavior that is commonly considered as belonging in the dependence-independence dimension. In this sense, on the basis of the current theoretical approaches, three areas were considered for coverage.

These areas were: instrumental independence,[6] emotional independence, and a section on simple decision making. Approximately 150 items were prepared, 80 of which were considered for inclusion in a preliminary instrument. After four interviews with parents of children similar to those included in the sample, revisions were made to clarify, discard, and add items. An instrument with 72 items was then prepared.

With the completion of the interviews, the second part of the item work proceeded. First, all schedules were examined to detect those items which without any statistical analysis could be identified as useless for any of the following reasons:

(1) were not pertinent in a considerable number of cases, i.e., items related to the telephone which many families did not have, or items related to the father who was absent totally or frequently from many homes

(2) were always rated the highest possible according to the parents (These items were too simple for children their age, i.e., drinking from a cup, turning lights on and off, and the like.)[7]

(3) were not clear in defining the condition intended, i.e., sleeps alone, which was intended to give an idea of the

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[6] With this instrument only one score was obtained. This score was based on a five-points-per-item maximum score for either maximum presence of positive (independent item type of behavior) or absence of negative (dependent-type of behavior).

[7] This type of item, even though it could not be used in the analyses of the instrument, will be kept in the instrument since they belong to younger age levels which will be within the range of the final instrument age range, i.e., 3 to 10 years.

> child's detachment from others, had no meaning in such cases as homes with two bedrooms and five to ten children. In these cases sleeping with others was a must.

This scrutiny left only 47 items answered for all children, which had a minimum of discrimination (at least some children did not rank the highest) and which otherwise appeared sufficiently clear. These 47 items were scored and the scores transferred to punched cards for machine analysis.

## The Statistical Analysis

Items Means and Variation. Means and standard deviations were computed for each of the 47 items for the 70 subjects taken as a whole. The means ranged from a minimum of 1.48 to a maximum of 4.58. The standard deviations ranged from 1.03 to 1.84. Table 6 shows the means and standard deviations obtained for the total sample.

The distribution of item means for the total sample was as follows:

| Means | Number of Items |
|---|---|
| < 2.5 | 2 |
| 2.5 - 2.99 | 7 |
| 3.0 - 3.49 | 10 |
| 3.5 - 3.99 | 9 |
| 4.0 - 4.49 | 15 |
| 4.5 + | 4 |

## TABLE 6

## MEANS AND STANDARD DEVIATIONS FOR THE ITEMS IN THE INVENTORY OF DEPENDENT AND INDEPENDENT BEHAVIOR

| Item Number | Mean | SD |
|---|---|---|
| 1 | 3.7 | 1.17 |
| 2 | 4.4 | 1.20 |
| 3 | 4.3 | 1.21 |
| 4 | 4.4 | 1.13 |
| 5 | 4.6 | 1.08 |
| 6 | 2.7 | 1.32 |
| 7 | 4.4 | 1.31 |
| 8 | 3.8 | 1.42 |
| 9 | 3.2 | 1.84 |
| 10 | 4.7 | .95 |
| 11 | 4.0 | 1.39 |
| 12 | 3.2 | 1.54 |
| 13 | 3.2 | 1.47 |
| 14 | 3.3 | 1.73 |
| 15 | 2.8 | 1.68 |
| 16 | 2.7 | 1.35 |
| 17 | 1.5 | 1.02 |
| 18 | 2.8 | 1.56 |
| 19 | 3.4 | 1.25 |
| 20 | 3.2 | 1.54 |
| 21 | 3.1 | 1.64 |
| 22 | 4.0 | 1.39 |
| 23 | 3.6 | 1.46 |
| 24 | 2.8 | 1.46 |
| 25 | 2.3 | 1.29 |
| 26 | 2.5 | 1.36 |
| 27 | 4.6 | 1.01 |
| 28 | 4.1 | 1.62 |
| 29 | 4.4 | 1.12 |
| 30 | 3.1 | 1.32 |
| 31 | 4.4 | 1.12 |
| 32 | 3.9 | 1.21 |
| 33 | 3.3 | 1.29 |
| 34 | 3.6 | 1.39 |
| 35 | 3.7 | 1.32 |
| 36 | 4.2 | 1.25 |
| 37 | 4.2 | 1.11 |
| 38 | 4.5 | 1.03 |
| 39 | 4.2 | 1.18 |
| 40 | 3.2 | 1.25 |
| 41 | 2.8 | 1.31 |
| 42 | 3.5 | 1.33 |
| 43 | 3.5 | 1.61 |
| 44 | 4.1 | 1.41 |
| 45 | 4.3 | 1.11 |
| 46 | 4.2 | 1.42 |
| 47 | 3.7 | 1.54 |

A concentration of high means can be observed in the distribution. This is evidence that a large percentage of the items belonged to a younger age level. It should be remembered that some other items had been discarded because their mean was 5.0 (the highest possible). The fact that many items belonged to a younger age level can be more clearly seen in the distribution of means by sex and age level (Table 7).

The distribution of item means for sex and age level showed that most item means were higher than 2.0 in the four distributions and a considerable amount had means between 4.0 and 5. Eleven of the 47 items had means between 4.4 and 5. for the male distribution. Fourteen of the 47 for the older age groups (75 + months) had means between 4.4 and 5., also. There were also high but less extreme means for the other two distributions, females and the younger group ( < 75).

Additional analysis of items by sex and age groups was done to detect items that would have better discriminatory power for one sex than for the other, or for one age level than for the other. Since the age range in this sample was not wide, only two age levels were used: less than 75 months, and 75 months or more. "T" tests to determine the significance of absolute differences between means for items by sex, or between age levels, were computed for some of the items. The results obtained suggested that a difference of .5 was frequently near the .05 level of significance. Based on that evidence it was considered sufficient to label an item as belonging to the group where its mean was

## TABLE 7

## DISTRIBUTION OF ITEMS MEANS FOR EACH SEX AND AGE LEVEL

| Mean Score | Male | Females | < 75 months | 75+ months |
|---|---|---|---|---|
| 1.4 - 1.6 | 1 | 1 | 1 | 1 |
| 1.7 - 1.9 | - | - | - | - |
| 2.0 - 2.2 | 1 | - | - | 1 |
| 2.3 - 2.5 | 1 | 4 | 4 | - |
| 2.6 - 2.8 | 6 | 1 | 4 | 3 |
| 2.9 - 3.1 | 6 | 5 | 6 | 4 |
| 3.2 - 3.4 | 6 | 6 | 6 | 6 |
| 3.5 - 3.7 | 5 | 5 | 6 | 6 |
| 3.8 - 4.0 | 2 | 8 | 4 | 9 |
| 4.1 - 4.3 | 7 | 11 | 12 | 3 |
| 4.4 - 4.6 | 8 | 6 | 4 | 8 |
| 4.7 - 4.9 | 3 | - | - | 6 |

higher, if it differed from the other mean by .5 or more. Considering the preliminary nature of this first phase of the work this "rule of thumb" was adequate enough. Nevertheless, since the standard deviations were the determining elements, the items where the standard deviations differed significantly (F values with probabilities around .05) were checked independently of the size of their mean differences as a complement to our "rule of thumb." In most of these cases ceiling effects were observed indicating that almost all of the subjects in a group were attaining the highest possible scores and therefore such items show very small standard deviations. (The means and standard deviations for the items, by sex, and age levels are presented in Tables 8 and 9.)

On the basis of the analysis, 8 items were labeled "female" and 8 items were labeled "male." The other items were considered common. In terms of age level, 8 items belonged in the older group and 2 items in the younger group. The other items were considered common. The labeled items were the following:

| | Sex |
|---|---|
| Item No. | Females |
| 1 | washes own hands |
| 6 | keeps toys in order |
| 8 | brushes teeth |
| 9 | ties own shoes |
| 12 | hangs his (her) clothes up |
| 35 | says he (she) is not loved |

## TABLE 8

## MEANS AND STANDARD DEVIATIONS FOR THE ITEMS IN THE INDEPENDENCE SCALE, BY AGE GROUP

| Item Number | Mean | | SD | |
|---|---|---|---|---|
| | < 75 months | 75+ months | < 75 months | 75+ months |
| 1 | 3.56 | 4.00 | 1.15 | 1.17 |
| 2 | 4.32 | 4.41 | 1.35 | .97 |
| 3 | 4.12 | 4.52 | 1.32 | 1.00 |
| 4 | 4.24 | 4.66 | 1.34 | .71 |
| 5 | 4.59 | 4.66 | 1.19 | .92 |
| 6 | 2.46 | 3.00 | 1.29 | 1.31 |
| 7 | 4.32 | 4.41 | 1.31 | 1.33 |
| 8 | 3.66 | 3.96 | 1.46 | 1.33 |
| 9 | 3.00 | 3.48 | 1.89 | 1.73 |
| 10 | 4.54 | 4.86 | 1.15 | .51 |
| 11 | 3.71 | 4.41 | 1.53 | 1.03 |
| 12 | 3.00 | 3.31 | 1.58 | 1.44 |
| 13 | 2.93 | 3.69 | 1.49 | 1.34 |
| 14 | 3.07 | 3.52 | 1.77 | 1.63 |
| 15 | 2.76 | 2.83 | 1.63 | 1.72 |
| 16 | 2.76 | 2.79 | 1.25 | 1.47 |
| 17 | 1.39 | 1.62 | .88 | 1.19 |
| 18 | 2.39 | 3.38 | 1.38 | 1.61 |
| 19 | 3.34 | 3.45 | 1.14 | 1.38 |
| 20 | 3.00 | 3.48 | 1.55 | 1.50 |
| 21 | 3.17 | 2.90 | 1.70 | 1.54 |
| 22 | 4.15 | 3.79 | 1.35 | 1.40 |
| 23 | 3.46 | 3.76 | 1.48 | 1.41 |
| 24 | 2.59 | 3.03 | 1.32 | 1.61 |
| 25 | 2.41 | 2.10 | 1.29 | 1.27 |
| 26 | 2.29 | 2.83 | 1.35 | 1.31 |
| 27 | 4.46 | 4.83 | 1.15 | .75 |
| 28 | 4.20 | 3.86 | 1.50 | 1.78 |
| 29 | 4.20 | 4.72 | 1.23 | .87 |
| 30 | 3.02 | 3.17 | 1.22 | 1.42 |
| 31 | 4.17 | 4.76 | 1.25 | .82 |
| 32 | 3.76 | 4.00 | 1.16 | 1.26 |
| 33 | 3.22 | 3.55 | 1.30 | 1.19 |
| 34 | 3.90 | 3.31 | 1.28 | 1.39 |
| 35 | 3.61 | 3.97 | 1.34 | 1.19 |
| 36 | 4.34 | 4.14 | 1.12 | 1.36 |
| 37 | 4.12 | 4.38 | 1.25 | .85 |
| 38 | 4.41 | 4.55 | 1.08 | .97 |
| 39 | 4.27 | 4.28 | 1.17 | 1.14 |
| 40 | 3.24 | 3.17 | 1.18 | 1.34 |
| 41 | 2.73 | 2.86 | 1.29 | 1.36 |
| 42 | 3.22 | 4.03 | 1.30 | 1.16 |
| 43 | 3.36 | 3.59 | 1.60 | 1.63 |
| 44 | 4.02 | 4.34 | 1.51 | 1.24 |
| 45 | 4.22 | 4.38 | 1.14 | 1.06 |
| 46 | 3.98 | 4.59 | 1.65 | .93 |
| 47 | 3.56 | 4.03 | 1.56 | 1.47 |

## TABLE 9

## MEANS AND STANDARD DEVIATIONS FOR THE ITEMS IN THE INDEPENDENCE SCHEDULE BY SEX

| Item Number | Mean | | SD | |
|---|---|---|---|---|
| | Male | Female | Male | Female |
| 1 | 3.49 | 4.00 | 1.23 | 1.07 |
| 2 | 4.31 | 4.40 | 1.17 | 1.25 |
| 3 | 4.40 | 4.17 | 1.15 | 1.28 |
| 4 | 4.43 | 4.40 | 1.15 | 1.13 |
| 5 | 4.83 | 4.40 | .74 | 1.31 |
| 6 | 2.34 | 3.03 | 1.17 | 1.38 |
| 7 | 4.54 | 4.17 | 1.10 | 1.48 |
| 8 | 3.34 | 4.23 | 1.39 | 1.29 |
| 9 | 2.71 | 3.69 | 1.77 | 1.79 |
| 10 | 4.77 | 4.57 | .76 | 1.10 |
| 11 | 4.14 | 3.86 | 1.38 | 1.40 |
| 12 | 2.71 | 3.54 | 1.43 | 1.52 |
| 13 | 3.20 | 3.29 | 1.49 | 1.47 |
| 14 | 3.06 | 3.46 | 1.79 | 1.64 |
| 15 | 3.14 | 2.43 | 1.64 | 1.63 |
| 16 | 3.14 | 2.40 | 1.27 | 1.31 |
| 17 | 1.40 | 1.57 | 1.02 | 1.02 |
| 18 | 2.86 | 2.74 | 1.51 | 1.59 |
| 19 | 3.46 | 3.31 | 1.23 | 1.26 |
| 20 | 2.89 | 3.51 | 1.47 | 1.56 |
| 21 | 2.77 | 3.34 | 1.55 | 1.67 |
| 22 | 4.17 | 3.83 | 1.08 | 1.61 |
| 23 | 3.89 | 3.86 | 1.33 | 1.52 |
| 24 | 2.60 | 2.94 | 1.50 | 1.41 |
| 25 | 2.14 | 2.43 | 1.31 | 1.25 |
| 26 | 2.51 | 2.51 | 1.36 | 1.36 |
| 27 | 4.63 | 4.60 | 1.07 | .96 |
| 28 | 4.17 | 3.94 | 1.50 | 1.74 |
| 29 | 4.34 | 4.49 | 1.14 | 1.11 |
| 30 | 3.14 | 3.03 | 1.20 | 1.40 |
| 31 | 4.54 | 4.29 | .94 | 1.28 |
| 32 | 3.69 | 4.03 | 1.26 | 1.13 |
| 33 | 3.14 | 3.57 | 1.27 | 1.23 |
| 34 | 3.66 | 3.66 | 1.37 | 1.35 |
| 35 | 3.37 | 4.14 | 1.33 | 1.12 |
| 36 | 4.51 | 4.00 | .91 | 1.43 |
| 37 | 4.31 | 4.14 | 1.01 | 1.20 |
| 38 | 4.86 | 4.09 | .49 | 1.27 |
| 39 | 4.43 | 4.11 | 1.10 | 1.19 |
| 40 | 3.20 | 3.23 | 1.16 | 1.33 |
| 41 | 2.46 | 3.11 | 1.18 | 1.37 |
| 42 | 3.23 | 3.89 | 1.35 | 1.17 |
| 43 | 3.77 | 3.14 | 1.48 | 1.69 |
| 44 | 4.40 | 3.91 | 1.20 | 1.56 |
| 45 | 4.34 | 4.23 | 1.14 | 1.07 |
| 46 | 4.17 | 4.29 | 1.50 | 1.34 |
| 47 | 3.74 | 3.77 | 1.56 | 1.53 |

43 tries to be with someone else all the time
44 feels jealous of daddy (or mom)

Males

15 combs or brushes hair
16 fixes minor things like toys
20 needs to be told to go to bed
21 needs to be told to get out of bed
35 cries when not taken places
41 is careless with his belongings (waits for others to care, collect, or order them)
42 complains that he can not do things

Age Groups Items

Item No. < 75 months

29 wets the bed
34 cries when he loses things

75 + months

3 puts on clothes
6 keeps toys in order
9 gets water from refrigerator
11 dries self after bath
13 bathes self
18 shines his shoes
20 needs to be told to go to bed
26 accepts invitations to visit friends

Item correlations with the total score were computed for the total sample and for the two groups by sex. The items with the highest correlations in each of the three distributions were not the same. Many more items correlated high with the total score among the females than among the males. The following items correlated .50 or more with their corresponding total score.

| Total Sample | | Males | | Females | |
|---|---|---|---|---|---|
| Item Number | Correlation with total | Item Number | Correlation with total | Item Number | Correlation with total |
| 2 | .69 | 2 | .71 | 2 | .69 |
| 3 | .64 | 3 | .70 | 3 | .63 |
| 4 | .70 | 4 | .78 | 4 | .66 |
| 5 | .54 | 5 | .74 | 5 | .56 |
| 7 | .54 | 8 | .52 | 7 | .66 |
| 11 | .52 | 18 | .55 | 9 | .53 |
| 42 | .58 | 19 | .54 | 10 | .59 |
| | | 42 | .67 | 11 | .63 |
| | | | | 12 | .62 |
| | | | | 13 | .59 |
| | | | | 14 | .53 |
| | | | | 22 | .51 |
| | | | | 42 | .55 |
| | | | | 46 | .58 |

The total list of correlations is presented in Table 10.

## Factor Analysis

Factor analysis was done first with the total sample of 70 subjects. The results of this analysis showed some inconsistencies. Items that loaded high in what seemed to be a factor did not relate to each other in a coherent fashion. In trying to clarify this phenomenon the sample was divided by sex and also by age level (not within sex) and factor analyzed again. The analysis by sex made clear what apparently had been the problem with the results for the total sample. The items would form patterns but these patterns were different for each sex. Examining the clusters of items with similar loadings in the factors,

## TABLE 10

## ITEMS CORRELATIONS WITH TOTAL SCORE, FOR TOTAL SAMPLE AND FOR GROUPS BY SEX

| Item Number | Correlation with Total Score | | |
|---|---|---|---|
| | Total | Male | Female |
| 1 | .08 | -.12 | .22 |
| 2 | .69 | .71 | .69 |
| 3 | .64 | .70 | .63 |
| 4 | .70 | .78 | .66 |
| 5 | .53 | .54 | .56 |
| 6 | .36 | .34 | .40 |
| 7 | .54 | .36 | .66 |
| 8 | .39 | .52 | .32 |
| 9 | .49 | .45 | .53 |
| 10 | .42 | .12 | .59 |
| 11 | .52 | .40 | .63 |
| 12 | .46 | .23 | .62 |
| 13 | .44 | .26 | .59 |
| 14 | .48 | .42 | .53 |
| 15 | .18 | .37 | .08 |
| 16 | .34 | .51 | .29 |
| 17 | .32 | .16 | .43 |
| 18 | .47 | .55 | .43 |
| 19 | .46 | .54 | .42 |
| 20 | -.02 | .15 | -.16 |
| 21 | .05 | .04 | .04 |
| 22 | .41 | .24 | .51 |
| 23 | .10 | -.09 | .25 |
| 24 | .47 | .37 | .56 |
| 25 | .22 | .12 | .29 |
| 26 | .18 | .13 | .21 |
| 27 | .30 | .12 | .45 |
| 28 | .10 | .00 | .18 |
| 29 | .21 | .04 | .33 |
| 30 | .32 | .32 | .33 |
| 31 | .42 | .40 | .45 |
| 32 | .25 | .29 | .22 |
| 33 | .42 | .37 | .45 |
| 34 | .40 | .32 | .47 |
| 35 | .31 | .47 | .19 |
| 36 | .35 | .20 | .45 |
| 37 | .34 | .39 | .33 |
| 38 | .36 | .30 | .47 |
| 39 | .37 | .36 | .41 |
| 40 | .29 | .27 | .30 |
| 41 | .30 | .35 | .27 |
| 42 | .58 | .67 | .55 |
| 43 | .29 | .25 | .34 |
| 44 | .38 | -.07 | .66 |
| 45 | .26 | .12 | .38 |
| 46 | .41 | -- | -- |
| 47 | .32 | -- | -- |

it was observed that only two factors were clearly defined with girls.[8] These two will be called instrumental independence and emotional independence. The following items were included in each factor for the females. For the instrumental independence factor:

| Item No. | | Loading |
|---|---|---|
| 2 | puts on socks | .75 |
| 3 | puts on clothes | .74 |
| 4 | puts on shoes | .78 |
| 5 | cares for self at toilet | .75 |
| 7 | gets water from refrigerator | .72 |
| 8 | brushes teeth | .55 |
| 9 | ties own shoes | .51 |
| 10 | sets T.V. | .79 |
| 14 | finds clothes to get dressed | .51 |
| 24 | decides on clothes to wear | .64 |

For the emotional independence factor:

| Item No. | | Loading |
|---|---|---|
| 33 | cries to be given things | -.58 |
| 34 | cries when loses things | -.57 |
| 36 | says is not loved | -.55 |
| 38 | cries if mother leaves house | -.70 |
| 39 | seems to resent mother's paying attention to other children | -.74 |
| 42 | complains that he cannot do things | -.67 |
| 45 | complains that is not helped | -.61 |
| 46 | asks for somebody to come and cover her in bed | -.55 |

---

[8] The computer produced six different columns of factor loadings but an examination of them showed that only two included important reasonable differences between items and had some psychological meaning.

Among the males the first factor can be identified, but the items are not all the same as for the girls. For this first factor, instrumental independence, the following items loaded high.

| Item No. | | Loading |
|---|---|---|
| 2 | puts on socks | .74 |
| 3 | puts on clothes | .76 |
| 4 | puts on shoes | .80 |
| 9 | ties own shoes | .64 |
| 15 | combs or brushes hair | .59 |
| 16 | fixes minor things on his toys | .54 |
| 18 | shines his shoes | .60 |
| 19 | goes on errands | .59 |

No other factor is clearly defined with the males.

Based on all the information obtained in all the analyses using the items it was concluded that:

(1) Additional work with the scale must make specific provisions for items concerning each sex and for each age level (tentatively 6 month differences could be considered).

(2) Age coverage of items should be not less than approximately three years below to three years above the age range in the sample considered, so as to help the instruments discriminating power in the highest and lowest age levels.

(3) A detailed inventory of children's behavior by sex and age level is needed to help identify items that will most likely show extremes in dependence or independence for each sex and age level.

## Factor Analysis with Cervenka's ROSAB

Cervenka's instrument used in this research consisted of 79 items. In order to put all the information on one card with the total score, 2 items were dropped leaving only 77. The two items dropped were number 60 (is absent from school) and number 79 (makes derogatory statements about cultural background of others which is different from his). These two items seemed to effect our results least, since the first (#60) was not a behavior in school of the type we were interested in and the last (#79) was marked in the same way for all the children in the sample. The factor analysis done with this instrument clearly showed 3 factors. These factors were named:

(1) imaginativeness and hard work

(2) aggressiveness

(3) communicativeness

The following items loaded high in the first factor:[9]

| Item No. | | Loading |
|---|---|---|
| 9 | Demonstrates imaginativeness and creativity in his handicraft works | .88 |
| 12 | Is alert to everything that happens in his immediate vicinity | .73 |

---

[9] For the sake of space only the loadings of the same type (positive or negative) will be included, for the items that seem to form a factor. Table 18 in Appendix IV presents the complete matrix.

| Item No. | | Loading |
|---|---|---|
| 15 | Works seriously and earnestly at his classwork; does not take school activities lightly | .81 |
| 17 | Likes to work independently; tries to figure out things for himself before calling on teacher or other children for help | .88 |
| 19 | Completes his assignments or tasks | .80 |
| 36 | Understands directions of the teachers the first time they are given and correctly performs assigned tasks | .71 |
| 42 | Volunteers to give answers to the teacher's questions | .61 |
| 43 | Volunteers to perform alone before his class, e.g., salutations, pledge of allegiance, etc. | .59 |
| 44 | Exhibits self-confidence; appears to trust in his own abilities; is confident that he can do what is expected of him | .85 |
| 72 | Goes about his activities with only a minimum of assistance from others | .63 |

The second factor, aggressiveness, loaded high in the following items:

| Item No. | | Loading |
|---|---|---|
| 1 | Is quarrelsome with classmates | .64 |
| 13 | Is unnecessarily upset or discouraged if he makes a mistake or does not perform well; responds to frustration or disappointment by becoming sullen, withdrawn, or sulky | .58 |
| 26 | Is excessive and aggressive in seeking the attention of adults | .63 |
| 68 | Responds to frustration or disappointment by becoming angry, aggressive, or belligerent | .67 |

The third factor, communicativeness, loaded high in the following items:

| Item No. | | Loading |
|---|---|---|
| 2 | Is eager to tell other children about his own experiences | .78 |
| 3 | Likes to talk with the teacher; approaches teacher outside of class time to ask questions of a personal, friendly and inquisitive nature | .81 |
| 11 | Shows affection and appreciation toward teacher; comes forward of his own volition to perform useful tasks for teacher | .80 |
| 14 | Talks eagerly to strange adults who visit his classroom about his own experiences, thoughts, and feelings | .82 |
| 18 | Laughs easily and freely when the situation is appropriate | .69 |
| 42 | Volunteers to give answers to teacher's questions | .66 |
| 43 | Volunteers to perform alone before his class, e.g., recitations, pledge of allegiance, etc. | .61 |
| 45 | Smiles or exhibits otherwise a pleasing expression | .65 |
| 49 | Is invited by other children to join a group, is wanted as a playmate by other children | .60 |

In addition to these three factors there were some indications of other small, less clearly defined clusters.[10] These were named: isolation, neatness, and respect for others. They cannot be called factors though, since they did not form a definite pattern.

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[10] The computer produced 9 columns of factor loadings but three of them did not show patterns to which any important psychological meaning could be attached.

From the three factors, and the three somewhat undefined clusters obtained in this analysis some ideas about adapting the ROSAB for use in further work with IDIB have come out. In the first place items will be regrouped. Some will be added, some discarded, and others revised. Factor analysis will be used to try to isolate factors such as aggressiveness, communicativeness, isolation, respect for others, and the like. Those factors will be used in connection with level of independence by sex and by age level in further stages of development, refinement, and standardization of IDIB.

# CHAPTER V

## SUMMARY AND CONCLUSION

### Summary

The main purpose of this project was to collect preliminary information for the development of a scale to measure level of independence. The instrument, which in its final form purports to cover an eight year range (ages 3 to 10, inclusive) involved only children from 5 to 6½ (mean age of 74 months). Based on general findings in research with the dependence-independence dimension several hypotheses were considered as reference variables to orient the data collection. These hypotheses were:

(1) Level of independence will differentiate ethnic groups. Ranking order will be Negro   Anglo   Mexican.

(2) Level of independence will correlate positively with each one of the measures of social behavior:

  (a) teacher's estimated rank of child's social competence

  (b) teacher's estimated rank of child's popularity

  (c) Interpersonal and Communicative score

  (d) status among peers

  (e) school adjustment

(3) For high dependent girls, status among peers will be lower than for high dependent boys.

(4) Intelligence will correlate positively with level of independence.

(5) Achievement will correlate positively with level of independence.

(6) Age will correlate positively with level of independence.

Concerning the first hypothesis no significant differences were found between the means for level of independence for the three ethnic groups. The evidence obtained in relation to the second hypothesis showed a positive trend in the direction predicted, i.e., level of independence positively related to social behavior. The correlations obtained were not very high. The highest coefficients of correlation were obtained for the females, especially the younger groups, and for the higher of the two groups into which the sample was divided according to IQ.

No significant differences were observed between the high dependent boys and the high dependent girls in terms of mean status among peers (Hypothesis 3).

Intelligence, as measured by IQ score obtained from the administration of the Stanford-Binet Test of Intelligence, showed no correlation with level of independence contrary to the prediction in Hypothesis 4. Evidence in relation to Hypothesis 5 was not conclusive. Regarding Hypothesis 6, there was a tendency for positive correlation between age level and level of independence. The correlations, though significantly different from zero in some of the groupings, and positive in all cases, were not very high.

Analysis done with the basic instrument used in this work (IDIB) showed some limitations. The most important limitation was a failure of the inventory to provide enough items for adequate discrimination among the subjects with higher level of independence (the males, and the 75 or more months of age group). It was observed, moreover, that the sex of the subject played an important role in the dependence or independence pattern of the subjects. Age, as expected, played a dominant role as well in behavior determination of the type involved in this study.

## Conclusion

In general the findings in this study agree with findings in previous research. The findings in this study nevertheless, cannot be properly assessed out of the context of its basic instrument, IDIB. The results are limited in their generalizability to the extent that the instrument was low in its discriminating power. It is evident that a reduction in the variation among the scores for level of independence (due to small discriminating ability of a large proportion of the items) would reduce the ability of the indexes used for comparison (means, standard deviations, and coefficients of correlation) to show some differences that may exist in the populations compared. In Table 13-B of Appendix IV the means and standard deviations for level of independence for each age level are presented. These means are significantly different at the .05 level of significance. The level of independence then, even within the restricted discriminating ability of the instrument, varies with age. Table 15 of Appendix IV reveals some important facts. The mean for the older boys (178.45) is significantly larger than the mean for the smaller groups (males and females). The mean for the older girls is similar to the mean for the older boys (176.72) but, the standard deviation for the distribution of scores among the two groups is not. These standard deviations were 26.2 and 12.9 for females and males respectively. All this evidence points to:

(1) Concentration of high scores among the older males showing possible ceiling effects, i.e., an area of low discrimination of the instrument in the higher scores for level of independence, and also

(2) high scores are evidenced among a large proportion of the older females.

Here the spread is considerably greater, which indicates that a smaller proportion of the older females than of the older males was in the extreme low discriminating area of the instrument. The difference in the distribution of scores for the older males and the older females, considered in the light of all the other evidence, indicates that the instrument (IDIB) had better discriminating capacity among girls than among the boys. This general pattern observed in relation to the scores for level of independence is the same as that observed in relation to the main hypothesis in this study, which related level of independence with social behavior. The highest correlations in relation to this hypothesis were found among the girls and among the younger subjects. The results among the oldest group and among the males do not necessarily mean that there was no correlation. The instrument was even less sensitive with the males than with the females in its ability to discriminate between subjects.

Due to the evident low discriminating capacity of IDIB, the usefulness of the other measures cannot be established in detail. Even though ROSAB yielded scores which showed wide variation, that alone cannot be considered sufficient evidence for its usefulness. It is not yet clear how objective the teacher using it can be. This needs to be checked. In addition, the instrument needs changes to bring it nearer the direct scope of the dependence-independence dimension, i.e., the behavior areas that can be reasonably considered concomitant to the dependence-independence dimension. Regarding the measure of status among peers, the basis on which children make their decisions needs to be more clearly determined before a relation between it and level of dependence can be firmly ascertained.

On the basis of this first study in the field of dependency, the author's main conclusion is that before investigations can proceed further in this area, extremes in dependence and independence for each sex and age level must be established. This can be accomplished with detailed inventories of behavior at age intervals of 6 months. The distributions of these inventories (by sex and age level) will show the probability each particular behavior has in each case. The type of behavior which shows a very low or very high probability will be the important behavior to observe for each specific group. Subjects which fall in the extreme areas within the dependence-independence dimension for their sex at each age level will be identified for future use in relating this variable to other variables at the time or in later life.

# APPENDIXES

# APPENDIX I

Dear Mrs.__________________:

As you know, it is very important that children get the best educational attention possible when they are in school, especially in their first years. This study is part of a national research program intended to add very important knowledge on which to base better educational planning in our schools. All the information that we are collecting is extremely important to this project. We hope that you will see the importance of this type of work for your child and give us the most accurate information you can about ________________________________.

I am going to read a list of common activities. I want you to tell me, for each one, how frequently________________________________ does it unassisted. You will have five alternatives to select for each activity:

1. He does it unassisted always.
2. He does it unassisted almost always.
3. He does it unassisted sometimes.
4. He almost never does it unassisted.
5. He never does it unassisted.

When answering, it is very important that you try to think on that particular activity alone and not connected to others, which probably we will mention later.

We will try the first activity now to see if my explanation is clear.

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1. Washes own hands | | | | | |
| 2. Puts on socks | | | | | |
| 3. Puts on clothes | | | | | |
| 4. Puts on shoes | | | | | |
| 5. Cares for self at toilet | | | | | |
| 6. Keeps toys in order | | | | | |
| 7. Gets water from refrigerator | | | | | |
| 8. Brushes teeth | | | | | |
| 9. Ties own shoes | | | | | |
| 10. Sets T.V. | | | | | |

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1 2 3 4 5

11. Dries self after bath
12. Hangs his clothes up
13. Bathes self
14. Finds his clothes to get dressed
15. Combs or brushes hair
16. Fixes minor things in his toys
17. Cuts his nails
18. Shines his shoes
19. Goes on errands

Now we have a set of different items. These have to do with various kinds of simple decisions. We want to know how frequently the child makes them.

1 2 3 4 5

20. Needs being told to go to bed
21. Needs being told to get out of bed (the alarm or being awakened is not enough)
22. Makes own selections of T.V. programs
23. Invites friends home
24. Decides on clothes to wear
25. Selects presents for friends or relatives
26. Accepts invitations to visit friends

Now we have the last group. Here I also want you to tell me how frequently does the child do them.

1 2 3 4 5

27. Wants the light on in his room during the night
28. Needs somebody to take him to the bathroom during the night
29. Wets the bed
30. Follows mother around
31. Hangs on to mother's skirt
32. Seeks to sit in father's lap
33. Seeks to sit in mother's lap

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| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 34. Cries to be given things | | | | | |
| 35. Cries when loses things | | | | | |
| 36. Cries when not taken to places | | | | | |
| 37. Says he is not loved | | | | | |
| 38. Calls mother during the night | | | | | |
| 39. Cries if mother leaves house | | | | | |
| 40. Seems to resent it if mother pays attention to other children | | | | | |
| 41. Tries to get attention if mother talks to somebody (not on phone) | | | | | |
| 42. Is careless with his belongings (waits for others to care, collect or order them) | | | | | |
| 43. Complains he can't do things | | | | | |
| 44. Tries to be with someone else all the time | | | | | |
| 45. Complains that he is not helped | | | | | |
| 46. Asks for somebody to come and cover him (in bed) | | | | | |
| 47. Wants to be carried in arms | | | | | |

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# APPENDIX II

## GENERAL INVENTORY OF SOCIAL, PERSONAL, AND EMOTIONAL ADJUSTMENT

### PART II: RECORD OF OBSERVATION OF SCHOOL ADJUSTMENT AND BEHAVIOR*

Instructions: In the spaces provided before each behavioral characteristic or pattern, the observer should put the number which indicates the extent to which each behavioral characteristic or pattern accurately describes the behavior of this pupil according to the following rating scale:

| Symbol | Extent of the Characteristic or Pattern |
|---|---|
| 0 | Never has behaved this way |
| 1 | Has behaved this way at least once |
| 2 | Sometimes has behaved this way |
| 3 | Frequently has behaved this way |
| 4 | Has behaved this way characteristically |
| 5 | Has behaved this way as a dominant pattern |

Be careful to base your ratings to every item on your own personal observation and experience with the pupil in the school environment. If significant changes have occurred in a child's behavior during the period of contact or observation, rate the most recent characteristics or patterns.

1. _______ Is quarrelsome with classmates for minor reasons.

2. _______ Is eager to tell other children about his own experiences.

3. _______ Likes to talk with the teacher; approaches teacher outside of class time to ask questions of a personal, friendly, and inquisitive nature.

4. _______ Does not need attention or approval from teacher or teacher assistant to sustain him in his classroom activities; does not look to them for signs of approval or disapproval when working on a task.

---

* Use authorized by author, Mr. Edward Cervenka

5. _______ Exhibits evidence of racial, cultural, or social prejudice, e.g., is disinclined to take part in play or work activities with other children of different skin coloring or socioeconomic background, etc.

6. _______ Finds it difficult to work or play by himself, requires the company of other children.

7. _______ Is lethargic or apathetic, has little energy or drive, does not like to exert himself physically.

8. _______ His behavior is often imitated by other children.

9. _______ Demonstrates imaginativeness and creativity in his handicraft work.

10. _______ Is clean, well groomed, tidy, and neat with regard to personal appearance.

11. _______ Shows affection and appreciation toward teacher, comes forward of his own volition to perform useful tasks for teacher.

12. _______ Is alert to everything that happens in his immediate vicinity.

13. _______ Is unnecessarily upset or discouraged if he makes a mistake or does not perform well; responds to frustration or disappointment by becoming sullen, withdrawn, or sulky.

14. _______ Talks eagerly to strange adults who visit his classroom about his own experiences, thoughts, and feelings.

15. _______ Works seriously and earnestly at his classwork, does not take school activities lightly.

16. _______ Cooperates with other children.

17. _______ Likes to work independently, tries to figure out things for himself before calling on teacher or other children for help.

18. _______ Laughs easily and freely when the situation is appropriate.

19. _______ Completes his assignments or tasks.

20. _______ Steals or takes personal objects from other children.

21. ______ Is isolated, left alone, or rejected by classmates.

22. ______ Lies.

23. ______ Cheats or copies the work of other children during testing.

24. ______ Is impudent, resentful, or ill-mannered toward the teacher.

25. ______ Works only when he receives close assistance or direction.

26. ______ Is excessive and aggressive in seeking the attention of adults.

27. ______ Cries.

28. ______ Does only what he wants to.

29. ______ Prefers to play alone.

30. ______ Shows even temper, is imperturbable, is not annoyed or cross with other children.

31. ______ Disrupts class by yelling loudly, jumping up from seat, throwing things, etc.

32. ______ Starts to do things before he completely understands directions and thus does things incorrectly.

33. ______ Stands up for his rights; e.g., will not yield his place in line, insists on getting his turn at play, etc.

34. ______ Pouts or frowns for prolonged periods of time.

35. ______ Is with one or more friends during recess, play, or lunch.

36. ______ Understands directions of the teacher the first time they are given and correctly performs assigned tasks.

37. ______ Is inattentive, is easily distracted by things going on around him.

38. ______ Daydreams; attention wanders from tasks at hand; is not prepared to answer when called on because he has not been listening.

39. _______ Is helpful, sympathetic, considerate, and thoughtful toward other children.

40. _______ Is easily angered or irritated.

41. _______ Keeps aloof from others.

42. _______ Volunteers to give answers to the teacher's questions.

43. _______ Volunteers to perform alone before his class, e.g., recitations, pledge of allegiance, etc.

44. _______ Exhibits self-confidence, appears to trust in his own abilities, is confident that he can do what is expected of him.

45. _______ Smiles or exhibits otherwise a pleasing expression.

46. _______ Respects the rights and property of other children.

47. _______ Accepts correction from the teacher pleasantly.

48. _______ Fights with or strikes other children.

49. _______ Is invited by other children to join a group, is wanted as a playmate by other children.

50. _______ Talks in moderate tones and tempos; not too loud or too soft, not too fast, not too slow.

51. _______ Does what adults ask him to.

52. _______ Is courteous to the teacher.

53. _______ Exhibits signs of jealousy; is quick to notice and react negatively to kindness or attention showed other children.

54. _______ Prefers the habitual and familiar to the novel and unfamiliar.

55. _______ Speaks in a barely audible voice.

56. _______ Shows little respect for the rights of other children, refuses to wait his turn, takes away objects and toys other children are using or playing with.

57. _______ Leaves tasks unfinished.

58. ______ Approaches new tasks timidly and without confidence, shrinks from trying new things, gives up very quickly.

59. ______ Emotional response to things, people, and events is very pronounced; over-responds to usual classroom problems, frustrations, and difficulties.

60. ______ Is shy, timid, and inhibited; will not engage in activities unless strongly encouraged to do so.

61. ______ Defends or praises his own efforts and accomplishments.

62. ______ Is uncooperative and intractable in group activities.

63. ______ Is reluctant to talk to adult visitors; responds verbally only when excessively urged and prompted.

64. ______ Lets other children impose on him or boss him around, is highly suggestible, is eager to do the bidding of other children.

65. ______ Is careful, neat, and methodical in the tasks that he performs.

66. ______ Is carefree, does not become frightened or apprehensive.

67. ______ Settles difficulties that arise between himself and other children without appealing to teacher or teacher assistant.

68. ______ Responds to frustration or disappointment by becoming angry, aggressive, or beligerent.

69. ______ Is not able to influence other children by his activities and interests.

70. ______ Is reluctant to give free rein to his imagination, does not like "make-believe" games or exercises.

71. ______ Is not interested or concerned about the quality of his performance.

72. ______ Goes about his activities with only a minimum of assistance from others.

73. ______ Likes new situations, changes, novelty; is venturesome, inquisitive, etc.

74. ______ Expresses annoyance when interrupted while engaged in demanding activities, e.g., doing difficult assignment, a puzzle, painting, etc.

75. ______ Seeks favorable attention; asks questions for information about things, places, persons, etc.; questions seem to be prompted by a genuine curiosity rather than bids for attention.

76. ______ Is polite to adults; says "Please," "Excuse me," "Thank you," "Por favor", "Con su permiso", "Muchas gracias", etc.

77. ______ Takes good care of his school books, supplies, and materials.

# APPENDIX III

## RATING OF INTERPERSONAL AND COMMUNICATIVE COMPETENCE*

Instructions

Immediately after completing each interview with the child (i.e., both the English and Spanish interview),** the interviewer should fill out this instrument. He should base his judgements solely on his observations and impressions of the child during each interview. It is advisable that the interviewer read over the statements before the interview is given in order to have some guidelines for his observations and impressions.

Record a number (from 1 to 7) on the separate rating sheet which indicates your judgement of the extent or frequency of each behavioral characteristic of the child during the interview.

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* The complete instrument consists of 40 items. For the purpose of this study 11 were selected. These eleven were the items most likely to be observed clearly in only one short interview.

** All interviews were conducted in English.

| | | Always | Almost Always | Often | Usually | Infrequently | Rarely | Never |
|---|---|---|---|---|---|---|---|---|
| 1. | The child's attention wandered, e.g., he looked out the window or under the table, he looked for the source of extraneous noise. | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 2. | The child's responses were a single word. | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 3. | The child moved about, wiggled or changed positions in his chair. | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 4. | The child looked at the interviewer after each of his responses for an indication of its appropriateness or for approval or disapproval. | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 5. | The child fidgeted, played with himself, his clothes, or his chair. | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 6. | The child seemed shy, timid or embarrased during the interview. | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 7. | The child touched his face or head with his hands during the interview. | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 8. | The child avoided the glance of the interviewer for prolonged periods of time. | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 9. | The child tended to crouch or slump down in his chair during the interview. | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 10. | The child responded in a barely audible voice. | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 11. | The child responded slowly and with considerable hesitation. | 7 | 6 | 5 | 4 | 3 | 2 | 1 |

# APPENDIX IV

(TABLES 11-20)

## TABLE 11

## GENERAL CHARACTERISTICS OF THE SAMPLE

| THE SUBJECT | | | | | | THE FAMILY | | | |
|---|---|---|---|---|---|---|---|---|---|
| School | Subject Number | Ethnicity* | Sex** | Age in Months | IQ | Sex** of Guardian | No. of Children Living with Subject | Age Range of Children Living with Subject (In years) | Estimate of Annual Income |
| Mathews (Morning) | 1 | M | M | 80 | 97 | M | 6 | 6-11 | $3,500 |
| | 2 | A | M | 77 | 121 | M | 2 | 5- 8 | 6,800 |
| | 3 | M | F | 74 | 102 | M | 5 | 5-12 | 4,500 |
| | 4 | A | F | 71 | 102 | M | 4 | 5-13 | 4,000 |
| | 5 | M | F | 66 | 90 | F | 6 | 1- 9 | 1,500 |
| | 6 | M | F | 74 | 82 | M | 5 | 1-12 | 3,600 |
| | 7 | N | M | 77 | 81 | M | 2 | 2- 5 | 2,472 |
| | 8 | M | M | 73 | 108 | M | 7 | 5-19 | 2,500 |
| | 9 | N | M | 73 | 96 | M | 7 | 1- 0 | 5,000 |
| | 10 | N | M | 73 | 93 | M | 7 | 1- 9 | 5,000 |
| | 11 | N | F | 74 | 79 | F | 3 | 3- 7 | 1,568 |
| | 12 | M | F | 85 | 73 | M | 3 | 4- 6 | 1,800 |
| | 13 | A | M | 72 | 106 | M | 5 | 4-10 | 3,200 |
| | 14 | M | M | 75 | 104 | M | 3 | 1- 7 | 3,000 |
| | 15 | M | M | 69 | 102 | M | 5 | 1- 8 | 3,360 |
| Mathews (Afternoon) | 1 | A | F | 78 | 93 | M | 4 | 2-11 | 4,000 |
| | 2 | M | F | 71 | 97 | M | 3 | 1- 5 | 3,120 |
| | 3 | M | M | 69 | 94 | M | 5 | 2- 9 | 3,156 |
| | 4 | M | M | 71 | 80 | M | 7 | 3-14 | 3,180 |
| | 5 | N | F | 70 | 73 | F | 5 | 1- 7 | 1,489 |
| | 6 | M | M | 73 | 80 | M | 2 | 5- 9 | 3,800 |
| | 7 | A | M | 74 | 100 | M | 5 | 1- 6 | 4,200 |
| | 8 | N | F | 72 | 77 | M | 1 | - | 3,000 |
| | 9 | M | F | 69 | 81 | M | 9 | 7-18 | 6,000 |
| | 10 | M | F | 69 | 74 | M | 5 | - | 8,000 |
| | 11 | A | M | 69 | 99 | M | 4 | 5- 9 | 5,000 |
| | 12 | A | M | 73 | 105 | M | 2 | 5-11 | 3,040 |
| | 13 | N | F | 80 | 64 | F | 10 | 1-16 | 5,760 |
| | 14 | A | F | 74 | 124 | M | 4 | 1- 5 | 3,600 |

*M = Mexican, A = Anglo, N = Negro
**M = Male, F = Female

## TABLE 11 (continued)

## GENERAL CHARACTERISTICS OF THE SAMPLE

| THE SUBJECT | | | | | | THE FAMILY | | | |
|---|---|---|---|---|---|---|---|---|---|
| School | Subject Number | Ethnicity* | Sex** | Age in months | IQ | Sex** of Guardian | No. of Children Living with Subject | Age Range of Children Living with Subject (In years) | Estimate of Annual Income |
| Palm (Morning) | 1 | M | F | 75 | 90 | M | 3 | 1- 5 | 4,080 |
| | 2 | M | F | 78 | 89 | M | 9 | 1-12 | 2,856 |
| | 3 | M | F | 78 | 83 | M | 2 | 4- 5 | 2,000 |
| | 4 | M | F | 78 | 75 | F | 3 | 5-16 | 2,880 |
| | 5 | M | F | 78 | 84 | - | - | - | 2,880 |
| | 6 | M | M | 69 | 95 | M | 6 | 1-13 | 2,600 |
| | 7 | M | M | 74 | 70 | M | 5 | 3- 8 | 1,920 |
| | 8 | M | F | 68 | 79 | M | 4 | 2- 6 | 2,600 |
| | 9 | M | F | 78 | 73 | M | 10 | 6-28 | 4,420 |
| | 10 | M | M | 78 | 65 | F | 6 | 2-12 | 1,620 |
| | 11 | M | F | 72 | 77 | M | 9 | 4-13 | 3,411 |
| | 12 | M | M | 77 | 67 | M | 7 | 4-16 | 3,780 |
| | 13 | M | M | .73 | 82 | M | 4 | 2- 6 | 3,360 |
| Palm (Afternoon) | 1 | M | F | 78 | 86 | M | 9 | 1-19 | 4,420 |
| | 2 | M | F | 79 | 90 | - | - | - | - |
| | 3 | M | F | 75 | 107 | M | 3 | 4- 9 | 3,360 |
| | 4 | M | F | 77 | 78 | M | 8 | 1-16 | 3,640 |
| | 5 | M | M | 78 | 76 | M | 6 | 3-11 | 4,769 |
| | 6 | M | M | 73 | 71 | M | 4 | 1- 9 | 1,360 |
| | 7 | M | M | 76 | 70 | M | 5 | 2- 9 | 3,072 |
| | 8 | M | M | 74 | 67 | M | 3 | 2- 6 | 3,000 |
| | 9 | M | F | 83 | 72 | M | 3 | 5-11 | 2,500 |
| | 10 | M | M | 76 | 80 | F | - | - | 1,560 |
| | 11 | A | F | 74 | 67 | M | 6 | 2-19 | 2,700 |
| | 12 | M | F | 69 | 77 | F | 2 | 3- 5 | 3,120 |
| | 13 | M | M | 72 | 76 | M | 4 | 2- 5 | 3,120 |
| | 14 | M | M | 68 | 75 | F | 6 | 5-16 | 1,620 |
| | 15 | M | F | 79 | 84 | M | 2 | 1- 6 | 520 |

*M = Mexican, A = Anglo, N = Negro
**M = Male, F = Female

## TABLE 11 (continued)

## GENERAL CHARACTERISTICS OF THE SAMPLE

| THE SUBJECT | | | | | | THE FAMILY | | | |
|---|---|---|---|---|---|---|---|---|---|
| School | Subject Number | Ethnicity* | Sex** | Age in months | IQ | Sex** of Guardian | No. of Children Living with Subject | Age Range of Children Living with Subject (In years) | Estimate of Annual Income |
| Campbell | 1 | N | F | 79 | 90 | F | 5 | 2-18 | 1,680 |
| | 2 | N | F | 70 | 94 | M | 3 | 1- 5 | 1,100 |
| | 3 | N | M | 72 | 89 | F | 1 | - | - |
| | 4 | N | M | 79 | 101 | F | 4 | 1- 5 | 3,000 |
| | 5 | N | F | 69 | 95 | F | 2 | 5- 7 | 2,000 |
| | 6 | N | M | 72 | 108 | F | 1 | 5 | 2,952 |
| | 7 | N | F | 78 | 82 | F | 6 | 5-17 | 3,600 |
| | 8 | N | M | 79 | 87 | M | 4 | 2-10 | 2,496 |
| | 9 | N | M | 71 | 105 | M | 2 | 5- 7 | 1,760 |
| | 10 | N | M | 74 | 60 | - | - | - | - |
| | 11 | N | F | 76 | 71 | M | 2 | 5- 7 | 2,000 |
| | 12 | N | F | 69 | 74 | M | 2 | 1- 5 | 1,800 |
| | 13 | N | M | 72 | 69 | - | - | - | - |
| | 14 | N | M | 70 | 79 | F | 2 | 1- 5 | 4,100 |

*M = Mexican, A = Anglo, N = Negro
**M = Male, F = Female

TABLE 12-A

CORRELATIONS BETWEEN INDEPENDENCE AND SOCIAL PERFORMANCE AND PEER SELECTION FOR GROUPS, BY SEX

| Variables Correlated | Total (N = 70) | Male (N = 35) | Female (N = 35) |
|---|---|---|---|
| Independence with: | | | |
| Social Performance | .275 $p < .025$ | .225 | .312 $p < .05$ |
| Peer Selection | .266 $p < .025$ | .098 | .371 $p < .025$ |

TABLE 12-B

MEANS AND STANDARD DEVIATIONS FOR THE THREE BASIC VARIABLES FOR THE GROUPS, BY SEX

| Variable | Total | | Male | | Female | |
|---|---|---|---|---|---|---|
| | Means | Standard Deviations | Means | Standard Deviations | Means | Standard Deviations |
| Independence | 171.14 | 22.36 | 169.47 | 18.25 | 172.54 | 25.74 |
| Social Performance | 279.00 | 55.88 | 272.34 | 57.00 | 285.66 | 53.92 |
| Peer Selection | 7.69 | 5.82 | 6.57 | 5.53 | 8.80 | 5.90 |

TABLE 13-A

CORRELATIONS BETWEEN INDEPENDENCE AND SOCIAL PERFORMANCE AND PEER SELECTION IN THE GROUPS, BY ETHNICITY

| Variables Correlated | Anglo (N = 9) | Mexican (N = 40) | Negro (N = 21) |
|---|---|---|---|
| Independence with: | | | |
| Social Performance | .576 | .338 $p < .025$ | .099 |
| Peer Selection | .274 | .261 $p < .05$ | .377 $p < .025$ |

TABLE 13-B

MEANS AND STANDARD DEVIATIONS FOR THE BASIC VARIABLES FOR THE GROUPS, BY ETHNICITY

| Variable | Anglo | | Mexican | | Negro | |
|---|---|---|---|---|---|---|
| | Means | Standard Deviations | Means | Standard Deviations | Means | Standard Deviations |
| Independence | 159.33 | 21.94 | 172.05 | 21.71 | 174.48 | 22.12 |
| Social Performance | 286.00 | 71.44 | 282.25 | 49.19 | 269.81 | 59.04 |
| Peer Selection | 8.89 | 5.74 | 8.10 | 5.67 | 6.38 | 5.91 |

TABLE 14-A

CORRELATIONS BETWEEN INDEPENDENCE AND SOCIAL PERFORMANCE AND PEER SELECTION IN THE GROUPS BY AGE

| Variables Correlated | Less Than 75 months (N = 41) | 75 months and over (N = 29) |
|---|---|---|
| Independence with: | | |
| Social Performance | .283 $p < .05$ | .175 |
| Peer Selection | -.030 | .525 $p < .005$ |

TABLE 14-B

MEANS AND STANDARD DEVIATIONS FOR THE BASIC VARIABLES FOR THE GROUPS BY AGE

| Variable | Less than 75 months | | 75 months and over | |
|---|---|---|---|---|
| | Means | Standard Deviations | Means | Standard Deviations |
| Independence | 166.73 | 21.44 | 177.40 | 22.14 |
| Social Performance | 270.32 | 60.93 | 291.28 | 45.16 |
| Peer Selection | 6.93 | 5.06 | 8.76 | 6.61 |

TABLE 15-A

CORRELATIONS BETWEEN INDEPENDENCE AND SOCIAL PERFORMANCE AND PEER SELECTION FOR THE GROUPS, BY INTELLIGENCE LEVEL

| Variables Correlated | Defective and Borderline (N = 27) | Low Average and Average (N = 43) |
|---|---|---|
| Independence with: | | |
| Social Performance | .153 | .275 p < .05 |
| Peer Selection | .048 | .336 p < .025 |

TABLE 15-B

MEANS AND STANDARD DEVIATIONS FOR THE THREE BASIC VARIABLES FOR THE GROUPS, BY INTELLIGENCE LEVEL

| Variable | Defective and Borderline | | Low Average and Average | |
|---|---|---|---|---|
| | Means | Standard Deviations | Means | Standard Deviations |
| Independence | 165.96 | 26.05 | 174.40 | 18.98 |
| Social Performance | 242.00 | 51.85 | 302.23 | 44.68 |
| Peer Selection | 5.41 | 3.35 | 9.12 | 6.55 |

TABLE 16

MEANS AND STANDARD DEVIATIONS FOR LEVEL OF INDEPENDENCE, SCHOOL ADJUSTMENT AND STATUS AMONG PEERS FOR THE GROUPS, BY SEX AND AGE

| Variable | Male | | Female | |
|---|---|---|---|---|
| | Mean | SD | Mean | SD |
| | | *Less than 75 months* | | |
| Independence | 165.75 | 18.94 | 168.12 | 24.48 |
| Social Performance | 257.46 | 58.84 | 288.47 | 59.19 |
| Peer Selection | 6.16 | 5.41 | 8.00 | 4.28 |
| | | *More than 75 months* | | |
| Independence | 178.45 | 12.92 | 176.72 | 26.20 |
| Social Performance | 304.82 | 35.30 | 283.00 | 48.26 |
| Peer Selection | 7.45 | 5.66 | 9.56 | 7.01 |

TABLE 17

MEANS AND STANDARD DEVIATIONS FOR LEVEL OF INDEPENDENCE, SCHOOL FOR THE GROUPS, BY SEX AND ETHNICITY

| Variable | Male | | Female | |
|---|---|---|---|---|
| | Mean | SD | Mean | SD |
| | | ANGLO | | |
| Independence | 149.60 | 24.25 | 171.50 | 9.07 |
| School Adjustment | 271.60 | 80.75 | 204.00 | 52.44 |
| Status Among Peers | 7.20 | 6.27 | 11.00 | 4.12 |
| | | MEXICAN | | |
| Independence | 171.16 | 15.39 | 172.86 | 26.13 |
| School Adjustment | 277.05 | 49.62 | 286.95 | 48.32 |
| Status Among Peers | 7.68 | 5.36 | 8.48 | 5.92 |
| | | NEGRO | | |
| Independence | 176.45 | 12.31 | 172.30 | 29.18 |
| School Adjustment | 264.55 | 54.98 | 275.60 | 62.70 |
| Status Among Peers | 4.36 | 4.73 | 8.60 | 6.26 |

TABLE 18

MEANS AND STANDARD DEVIATIONS FOR ITEMS IN ROSAB

| Item Number | Mean | Standard Deviation | Item Number | Mean | Standard Deviation |
|---|---|---|---|---|---|
| 1 | 3.9714 | 1.2418 | 41 | 4.0714 | 1.0996 |
| 2 | 2.9000 | 1.3218 | 42 | 2.9429 | 1.4431 |
| 3 | 3.2857 | 1.4055 | 43 | 2.4857 | 1.7299 |
| 4 | 3.8857 | 1.3580 | 44 | 2.9857 | 1.6690 |
| 5 | 4.8286 | .5848 | 45 | 3.7571 | .8183 |
| 6 | 4.4000 | .9914 | 46 | 3.8143 | .8158 |
| 7 | 4.0000 | 1.3093 | 47 | 3.4857 | .7726 |
| 8 | 2.0000 | 1.4736 | 48 | 4.1286 | 1.1329 |
| 9 | 2.4571 | 1.6706 | 49 | 3.3857 | .9303 |
| 10 | 3.7143 | 1.3538 | 50 | 3.4571 | .8567 |
| 11 | 3.2857 | 1.2665 | 51 | 3.8000 | .6887 |
| 12 | 3.1714 | 1.3199 | 52 | 4.1000 | .6579 |
| 13 | 4.2857 | 1.0302 | 53 | 4.7143 | .8806 |
| 14 | 2.4143 | 1.4687 | 54 | 2.9714 | 1.4038 |
| 15 | 3.2000 | 1.3266 | 55 | 4.1286 | 1.0545 |
| 16 | 3.6429 | .7178 | 56 | 4.4000 | 1.0337 |
| 17 | 3.0143 | 1.4392 | 47 | 3.6429 | 1.3206 |
| 18 | 3.6429 | .8113 | 58 | 3.4714 | 1.4902 |
| 19 | 3.4429 | 1.0507 | 59 | 4.4857 | .9062 |
| 20 | 4.9571 | .2025 | 60 | 3.7429 | 1.5463 |
| 21 | 4.5571 | .8390 | 61 | 2.4286 | 1.2713 |
| 22 | 4.8000 | .5757 | 62 | 4.2000 | 1.0502 |
| 23 | 4.3429 | 1.2860 | 63 | 3.2714 | 1.5111 |
| 24 | 4.8000 | .6000 | 64 | 3.8143 | 1.1746 |
| 25 | 3.9000 | 1.4358 | 65 | 2.9857 | 1.4687 |
| 26 | 4.0143 | 1.5071 | 66 | 3.2286 | 1.2326 |
| 27 | 4.7286 | .6745 | 67 | 3.0143 | 1.0622 |
| 28 | 4.2286 | .9881 | 68 | 4.4286 | 1.0081 |
| 29 | 3.7429 | 1.1672 | 69 | 3.8429 | 1.3270 |
| 30 | 3.3571 | 1.0287 | 70 | 3.2143 | 1.4918 |
| 31 | 4.4286 | 1.2020 | 71 | 3.9143 | 1.3065 |
| 32 | 3.8857 | 1.2822 | 72 | 2.9286 | 1.0733 |
| 33 | 1.7571 | 1.0615 | 73 | 2.7286 | 1.5485 |
| 34 | 4.3714 | 1.0443 | 74 | 4.1571 | 1.0507 |
| 35 | 3.2571 | .9810 | 75 | 2.8143 | 1.4172 |
| 36 | 3.0571 | 1.3720 | 76 | 3.7857 | .9841 |
| 37 | 3.1143 | 1.5634 | 77 | 3.7143 | .9583 |
| 38 | 3.2000 | 1.3690 | | | |
| 39 | 3.3714 | .8972 | | | |
| 40 | 4.4714 | 1.0103 | | | |

## TABLE 19

## FACTOR LOADINGS FOR ANALYSIS WITH ITEMS IN INVENTORY OF DEPENDENT AND INDEPENDENT BEHAVIOR BY SEX

| | FACTOR LOADINGS | | | | | |
|---|---|---|---|---|---|---|
| | Males | | | Females | | |
| Item Number | 1 | 2 | 3 | 1 | 2 | 3 |
| 1 | -.1532 | -.7891 | .1166 | .1417 | .1274 | .0784 |
| 2 | .7446 | -.0940 | -.2453 | .7454 | -.2183 | .3609 |
| 3 | .7576 | .0437 | -.0855 | .7418 | -.1751 | .1014 |
| 4 | .7970 | .0123 | -.0609 | .7778 | -.2141 | .3030 |
| 5 | .4180 | -.1987 | -.0810 | .7463 | -.0928 | .2513 |
| 6 | .4153 | -.3526 | -.2050 | .0188 | -.2650 | .2249 |
| 7 | .4710 | .1937 | .3087 | .7236 | -.3129 | .2306 |
| 8 | .3299 | -.3820 | .3093 | .5542 | -.1389 | -.1552 |
| 9 | .6435 | -.1213 | .0556 | .5054 | -.2491 | .1342 |
| 10 | .0846 | -.0325 | .7544 | .7919 | -.2764 | .1849 |
| 11 | .1018 | .1409 | -.2208 | .4063 | -.1761 | .6271 |
| 12 | .2247 | .0577 | -.6884 | .2104 | -.2989 | .4523 |
| 13 | .1099 | .1718 | .2312 | .3670 | -.2050 | .3140 |
| 14 | .3880 | -.1860 | .2990 | .5122 | -.1357 | .0582 |
| 15 | .5861 | -.0853 | .2082 | .0141 | .2771 | .0721 |
| 16 | .5385 | .3100 | -.0210 | -.0117 | -.0752 | .6134 |
| 17 | .1073 | -.0974 | .0826 | -.0156 | -.1154 | .2663 |
| 18 | .5968 | .2302 | .2957 | .4067 | -.2180 | .0502 |
| 19 | .5915 | -.0722 | .0051 | .1379 | -.0304 | .3896 |
| 20 | .0378 | .2855 | -.0573 | .1151 | .1693 | -.4646 |
| 21 | -.0195 | .7442 | -.0188 | .1233 | -.0850 | .1332 |
| 22 | -.0068 | -.0186 | .1183 | .4784 | .0048 | .5643 |
| 23 | -.1492 | -.2621 | .2335 | .3755 | .1975 | .3538 |
| 24 | .1579 | -.0741 | .1990 | .6380 | .1962 | .3532 |
| 25 | .0272 | .0892 | .6202 | .1570 | .0490 | .3656 |

### TABLE 19 (continued)

### FACTOR LOADINGS FOR ANALYSIS WITH ITEMS IN INVENTORY OF DEPENDENT AND INDEPENDENT BEHAVIOR BY SEX

| | FACTOR LOADINGS | | | | | |
|---|---|---|---|---|---|---|
| | Males | | | Females | | |
| Item Number | 1 | 2 | 3 | 1 | 2 | 3 |
| 26 | .1463 | .3260 | .3458 | .0038 | .2438 | .5822 |
| 27 | .0032 | -.4361 | -.2022 | .1428 | -.2572 | .1427 |
| 28 | -.1019 | -.0815 | .1314 | -.1269 | -.1325 | .0733 |
| 29 | -.2248 | .2052 | .2974 | .6766 | -.1349 | -.2610 |
| 30 | .4669 | -.4262 | .0546 | .1359 | -.1371 | -.1378 |
| 31 | .4456 | -.4565 | -.1153 | .7202 | -.2038 | -.2792 |
| 32 | .1459 | -.5207 | -.2047 | .4084 | .1052 | -.0695 |
| 33 | .4232 | .3024 | -.1195 | .0433 | -.5789 | .2441 |
| 34 | .3229 | .2876 | .1217 | .0440 | -.5701 | .4182 |
| 35 | .4597 | .3596 | -.1306 | .1996 | -.1122 | .3587 |
| 36 | .1963 | .3082 | -.2889 | .3751 | -.5504 | .0123 |
| 37 | .2997 | .0077 | .0379 | .1688 | -.1551 | .2672 |
| 38 | .3682 | .0969 | -.1652 | .2823 | -.6950 | -.0351 |
| 39 | .2099 | -.3359 | .0580 | -.0237 | -.7406 | -.1231 |
| 40 | .3764 | -.0371 | -.2028 | .1783 | -.4372 | -.1073 |
| 41 | .3763 | .1149 | -.0299 | -.0096 | .2825 | .2419 |
| 42 | .6452 | -.0721 | .0195 | .3272 | -.6727 | -.0749 |
| 43 | -.0021 | -.1913 | -.0298 | .1180 | -.1148 | -.0058 |
| 44 | -.0723 | .1998 | -.0975 | .4468 | -.3188 | .0012 |
| 45 | .0908 | .0062 | .1514 | .2105 | -.6149 | -.0715 |
| 46 | -.0944 | .1555 | .1343 | .1651 | -.5486 | .3395 |
| 47 | .0117 | -.2246 | -.1076 | .6310 | -.1025 | .0372 |

## TABLE 20

## FACTORS IN CERVENKA'S SCALE

| | FACTOR LOADINGS | | | | | |
|---|---|---|---|---|---|---|
| Item Number | 1 | 2 | 3 | 4 | 5 | 6 |
| 1 | -.0375 | .6449 | -.0190 | .1464 | .2096 | .3636 |
| 2 | .3745 | -.0956 | .7831 | .2249 | .1137 | .1186 |
| 3 | .2757 | -.0695 | .8067 | -.0089 | .1983 | -.0972 |
| 4 | .7160 | .1736 | -.0099 | -.0845 | .4382 | -.2181 |
| 5 | -.0373 | .2403 | -.1494 | .1466 | .0286 | .0900 |
| 6 | .5207 | .3057 | -.0173 | -.0350 | .2029 | .2269 |
| 7 | .4532 | .2836 | .1623 | .2919 | .1807 | -.5057 |
| 8 | .5988 | .2484 | .3635 | .2925 | .0476 | .1364 |
| 9 | .8775 | .1577 | .1656 | .0123 | .0199 | -.0266 |
| 10 | .2604 | .1388 | .1053 | .0930 | .6710 | .1552 |
| 11 | .3119 | .1640 | .8034 | -.0105 | .2383 | .0262 |
| 12 | .7338 | -.0056 | .4511 | -.1091 | .1818 | .0022 |
| 13 | .0375 | .5828 | .0818 | .2275 | .0198 | -.2056 |
| 14 | .3282 | -.1114 | .8204 | .0712 | .0304 | .0344 |
| 15 | .8071 | .2253 | .1744 | -.0906 | .2611 | .0106 |
| 16 | .3327 | .3426 | .4043 | .0695 | .5007 | .2527 |
| 17 | .8806 | .0516 | .2173 | -.1220 | .1796 | -.0167 |
| 18 | .2404 | .1665 | .6920 | .1042 | .3306 | .1788 |
| 19 | .8019 | .1405 | .1993 | -.0520 | .2549 | .0062 |
| 20 | .1188 | .1796 | .1060 | -.0520 | -.0391 | .4232 |
| 21 | .1996 | .2484 | .3147 | .4389 | .5706 | .1893 |
| 22 | -.0380 | .3862 | -.0717 | -.0572 | .1273 | .1780 |
| 23 | .6900 | -.1147 | .0821 | -.0686 | .0124 | .2228 |
| 24 | .1033 | .7392 | -.0434 | .0838 | -.1011 | .0950 |
| 25 | .8376 | -.0198 | .1742 | -.1470 | .0871 | -.0074 |

TABLE 20 (continued)

FACTORS IN CERVENKA'S SCALE

| | FACTOR LOADINGS | | | | | |
|---|---|---|---|---|---|---|
| Item Number | 1 | 2 | 3 | 4 | 5 | 6 |
| 26 | .1051 | .6284 | .0814 | -.4074 | .0212 | .0209 |
| 27 | .1059 | .0462 | -.0439 | .1412 | -.0089 | .0209 |
| 28 | .3009 | .6726 | .0159 | .1762 | .0050 | .1301 |
| 29 | -.0324 | .0116 | .3218 | .7453 | .0339 | .0727 |
| 30 | -.0913 | .6502 | .0763 | -.2817 | .2377 | .0146 |
| 31 | .0944 | .4823 | .1216 | .0237 | .0547 | .7196 |
| 32 | .4806 | .3654 | .0145 | -.0221 | .4569 | -.0097 |
| 33 | -.5084 | .1654 | -.3777 | -.3143 | -.2181 | .0815 |
| 34 | .0683 | .8088 | .0025 | .2744 | -.1270 | -.0503 |
| 35 | .4410 | -.0062 | .4632 | .3812 | .2442 | -.1436 |
| 36 | .7129 | .1130 | .3369 | .0056 | .4245 | -.1780 |
| 37 | .6240 | .2423 | 1178 | .1076 | .1459 | .2521 |
| 38 | .6191 | .2759 | .1559 | .1922 | .1673 | .2407 |
| 39 | .2149 | .4894 | .4535 | .1785 | .4097 | .1131 |
| 40 | -.0720 | .5411 | .0150 | .1216 | .1767 | .0968 |
| 41 | .0739 | .1543 | .3292 | .7674 | .2111 | .0447 |
| 42 | .6089 | -.0017 | .6639 | .1792 | -.0013 | .0300 |
| 43 | .5856 | .1206 | .6068 | .3742 | .0259 | .0131 |
| 44 | .8512 | .1147 | .3357 | .1382 | .0274 | .0572 |
| 45 | .1979 | .2238 | .6451 | .1678 | .1191 | .0519 |
| 46 | .2640 | .4968 | -.0302 | .0803 | .5058 | .3067 |
| 47 | -.0846 | .8100 | .0467 | -.1400 | .1593 | .0990 |
| 48 | .0569 | .3923 | .0477 | .1637 | .2089 | .6582 |
| 49 | .4989 | .1210 | .6011 | .2221 | .3554 | -.0304 |
| 50 | .2896 | .4790 | .3366 | -.2957 | .2783 | .1865 |

TABLE 20 (continued)

FACTORS IN CERVENKA'S SCALE

| Item Number | FACTOR LOADINGS 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 51 | .3981 | .6796 | .1354 | .0254 | .3393 | .0858 |
| 52 | .1986 | .6190 | .0290 | -.1177 | .3671 | .0153 |
| 53 | -.1527 | .1155 | -.2168 | .1532 | -.1259 | .1546 |
| 54 | .7334 | -.0000 | .2058 | .0701 | .1846 | .1291 |
| 55 | .1434 | .0403 | .5593 | -.1749 | -.0407 | -.3106 |
| 56 | .2189 | .4800 | -.0410 | .2579 | .1780 | .5351 |
| 57 | .6884 | .1949 | .1706 | .1593 | .2434 | .0471 |
| 58 | .7801 | -.0157 | .3478 | .1713 | .2002 | -.0081 |
| 59 | .2824 | .5211 | .0108 | -.1078 | .0943 | -.1098 |
| 60 | .4855 | -.0151 | .6373 | .3420 | -.1661 | -.0529 |
| 61 | -.5880 | -.0430 | -.3263 | .0547 | -.0822 | .0734 |
| 62 | .2460 | .7479 | .1121 | .2136 | .0761 | .0648 |
| 63 | .2623 | -.0775 | .7269 | .1028 | - 1559 | .1243 |
| 64 | .7071 | -.0830 | .3669 | .2021 | -.1342 | .0892 |
| 65 | .6722 | .4727 | .1645 | -.0165 | .3169 | -.0102 |
| 66 | .1350 | .0133 | .4314 | .0237 | .5774 | -.3053 |
| 67 | .3586 | .0943 | .0564 | .1948 | .6358 | -.0694 |
| 68 | .0718 | .6652 | .0601 | .3965 | .0119 | .2654 |
| 69 | .6715 | .1651 | .2901 | .3329 | .0567 | .0796 |
| 70 | .6664 | .1063 | .2198 | .1612 | .0484 | .0734 |
| 71 | .6623 | .4872 | .0826 | -.1425 | .0650 | .0367 |
| 72 | .6277 | .1795 | .2067 | .1250 | -.0551 | .0507 |
| 73 | .7879 | -.0026 | .4054 | .0912 | .1861 | -.1986 |
| 74 | -.0573 | .2072 | .0817 | .1175 | .1663 | .1685 |
| 75 | .6778 | .0923 | .5461 | .0407 | .1395 | -.1311 |

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